

# CPS Educator II Course Student Manual

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# BCAA CPS Educator II Course

Welcome to the BCAA Child Passenger Safety Educator II Course. Whether your goal is to provide training within your organization, to your clients or to educate the public, you will be contributing to the safety of children in British Columbia – and that's both important and rewarding!

Motor vehicle collisions are a leading cause of child injuries and death in BC. The BCAA Child Passenger Safety Educator II Course teaches participants to be leaders in protecting children when traveling in a motor vehicle. This specialized training focuses on the fundamentals of child passenger safety and the use of protection systems for children.



# Background

BCAA has been involved in educating the public about child passenger safety (CPS) for over 25 years through media campaigns, offering Child Seat Instructional Clinics, information sessions and workshops, and working with stakeholders throughout the province and Canada to improve the safety of child passengers.

The history of CPS certification training in British Columbia, dates to the mid 1990's prior to the development of BCAA's course. At this time, training was offered through NHTSA (National Highway Traffic Safety Administration) based in the US. Eventually, the need for a Canadian training program was recognized and a committee that included NHTSA trained Canadians developed the St. John Ambulance CPS Technician Training course which was offered nationally.



In 2009, BCAA partnered with the Justice Institute of British Columbia to develop a CPS training program, based on the St. John Ambulance course, that reflected changes in the use of child car seats and in the British Columbia laws governing their use. The development team included certified, CPS technicians and instructors, engineers, healthcare professionals, and instructional designers. An advisory committee that included experts from Transport Canada,

Rona Kinetics, NHTSA (US national program), University of Saskatchewan, Saskatchewan Prevention Institute, and St. John's Ambulance was set up to oversee the accuracy of the content and the development of the [BCAA CPS Educator Practice Standards](#) that formed the foundation for curriculum development.

One of the changes BCAA made in our program was to move away from the approach where the focus was on a technician checking and correcting child seat use to a focus on teaching others. BCAA wanted messaging to reflect that correctly protecting child passengers is not difficult and with a little knowledge anyone can effectively and safely do it. For these reasons, BCAA revised the:

- Title of someone BCAA trained in this field from CPS Technician to CPS Educator.
- Process of conducting child seat clinics to focus on educating the participants rather than checking and correcting the installation of child seats.
- Name of an inspection clinic to Child Seat Clinic to promote it as a learning experience not an inspection.

Another important step in this development was to utilize current principles of adult learning and instructional design while considering the type of learners the BCAA CPS Program would focus on. The result of this process was a streamlined curriculum provided in a blended delivery mode offered at no cost.

Today, the BCAA CPS Program has approximately 700 active CPS Educators conducting CPS education sessions to parents, caregivers, and professionals working with children throughout British Columbia.

## What is a CPS Educator?

**In short, a BCAA CPS Educator is a person who has been trained by BCAA to provide child passenger education to others. At this time in Canada, there is no national requirement for certification, standards or any program overseeing the work related to teaching CPS. However, most training programs have the same core content.**

As a CPS Educator you will have the knowledge and skills to provide information to support others to choose, use and evaluate the safety of child passengers. In addition, you will provide instructions on how to correct errors and solve more difficult issues. You will be expected to use active and problem-based learning approaches that allow you to learn primarily through doing.



## Certification requirements

To become a certified BCAA CPS Educator, you must:

- Successfully complete the BCAA CPS Educator II Course
  - Score 80% or more on the Knowledge Exam
  - Successfully complete a Skills Evaluation
- Participate in a Child Seat Clinic

## Maintain active status

To maintain an active status and ensure as a BCAA CPS Educator (Educator) you stay current, you must:

- Participate in one or more of the following activities on an annual basis:
  - Information session
  - Hands-On workshop
  - Child Seat Clinic
- Complete the online BCAA CPS Educator Competency Review every two years.

## Best practice

A CPS Educator supports best practices in their work. Laws and regulations take a long time to develop and implement, therefore, when something changes (e.g. new methods, new equipment, updated practice) these are often not reflected in the laws and regulations for a long time. Best practices go beyond the laws and regulations to include the most current practice for keeping child passengers safe. They are informed from the results of research and testing, changes in manufacturer's instructions, or new features or equipment. The knowledge and skills in this course, and the BCAA CPS program resources represent current best practices in CPS.

## Expectations

It's important to remember when working as a CPS Educator is that you are not expected to know everything. You are expected to abide by the [BCAA CPS Educator Practice Standards](#) and to know the principles behind how to keep child passengers safe and where, and when, to look up information. A best practice is to always look information up when you aren't sure or don't know. This includes referring to:

- This student manual
- The child car seat and vehicle owner's manuals
- The child car seat and vehicle manufacturer websites
- News and updates on the BCAA CPS Educator Community
- Transport Canada website

The knowledge you impart can impact the safety of others, so it is very important that you are confident about that knowledge. When in doubt, look it up!



# Course Description

The BCAA CPS Educator II Course is available throughout British Columbia free of charge to anyone who wants to become a certified BCAA Child Passenger Safety (CPS) Educator.

The course is suitable for organizations whose staff require specialized training in CPS, such as retail, police, firefighters, paramedics, child-care workers, community support workers and health-care providers.

You will gain knowledge and skills needed to provide CPS education in your community including:

- Child Seat Clinics
- Information Sessions
- Hands-On Workshops
- Public Awareness Campaigns

## Course Goal and Objectives:

The goal for this course is to prepare you to provide child passenger safety education services.

Upon successful completion, you will be able to:

- Explain the purpose, function, and use of protection systems for child passengers
- Demonstrate choosing the appropriate occupant protection for children under 16 years old
- Demonstrate using the owner's manuals for the child car seat and vehicle when assessing and using protection for child passengers
- Demonstrate proper installation of a child car seat
- Demonstrate securing a child in an appropriate occupant protection system
- Educate others on the correct use of occupant protection for children including:
  - The legal requirements for drivers in BC
  - The correct occupant protection for children
  - Guiding others to correctly use a child car seat
- State the laws and regulations pertaining to CPS in British Columbia
- Organize and implement CPS initiatives and awareness programs

## Course Structure

The course is offered in a blended mode as follows:

### Self-Study

You are provided with materials and resources to work through at your own pace. This includes pre-reading to prepare for the hands-on session and completing the online Knowledge Exam. Allow yourself between 10 to 12 hours to complete the self-study.

### Hands-On

A one-day session delivered face-to-face. This includes hands-on practice and skills evaluation.



## Course materials

To complete the course, you will need this manual (the BCAA CPS Educator II Student Manual) and a device with access to the internet and the ability to view videos e.g., computer, tablet and to access the BCAA CPS Educator Community.

### The BCAA CPS Educator II Student Manual

The BCAA CPS Educator II Student Manual supports learning through both the self-study and hands-on sections of the course. There are 18 units, organized into 4 Sections:

#### **SECTION A: CPS Foundations**

- Unit 1: Understanding Crash Dynamics
- Unit 2: Protection
- Unit 3: Special Considerations for Child Passengers
- Unit 4: Child Passenger Protection
- Unit 5: CPS Laws and Regulations
- Unit 6: Choosing Child Passenger Protection

#### **SECTION B: Getting to Know Child Car Seats and Vehicles**

- Unit 7: Getting to Know a Child Car Seat
- Unit 8: Parts of a Child Car Seat: Installation
- Unit 9: Parts of a Child Car Seat: Securing
- Unit 10: Getting to Know the Vehicle

#### **SECTION C: CPS Education**

- Unit 11: Educating Others
- Unit 12: CPS Educator Support

#### **SECTION D: Hands-On Skills**

- Unit 13: Use the Seat Belt System
- Unit 14: Lock a Seat Belt
- Unit 15: Prepare the Child Car Seat
- Unit 16: Install the Child Car Seat
- Unit 17: Secure the Child in the Car Seat
- Unit 18: Unsafe Practices

## Each unit includes:

### Unit specific objectives and topics

The first page of each unit will include the topics covered and the objectives for that unit. The knowledge objectives focus on what you will be learning during the self-study portion of the course (Units 1 to 12) and the skill objectives focus on what you learn in the hands-on portion (Units 13 to 18). As you work through the self-study portion, it's important to remember that you are not expected to master the skill objectives in Units 13 to 18, just focus on the knowledge objectives of those units to get a basic understanding of how child car seats are used.

### Videos

Throughout the manual you will be directed to watch videos. Links are provided to the videos. If you are using a print version of the manual, you will find the links to the videos in CPS Educator II Course: Student: Video Links section of the BCAA CPS Educator Community.

### Educator Tips

Each unit has Educator Tips which provide you with helpful information for working as a CPS Educator.

### Activity

An activity is provided at the end of this introduction and through some of the units to help you apply the knowledge objectives learned in the self-study portion of the course.

### Key Points

Units 1 to 13 will have Key Points at the end. These provide an overview of the important information covered in the unit that you need to know to work as a BCAA CPS Educator.

As you work through the manual, complete the Sections as follows:

- Section A, B and C: Units 1 to 12
  - Watch the videos
  - Complete the activities
  - Review the Key Points
- Section D: Skills (Units 13-18)
  - Pre-read these units before the hands-on session
  - Watch the videos and do the activities

When you've finished all the sections of the manual, complete the online Knowledge Exam in the [BCAA CPS Educator Community](#). The exam **MUST** be completed before you attend the hands-on session.

## BCAA CPS Educator Community

To complete this course and work as a CPS Educator, you will need access to the BCAA CPS Educator Community (the Community). The Community provides you with access to online resources to support your learning as a student and your work as a BCAA CPS Educator. The Community can be accessed using a computer, laptop, or any mobile device.

As students, you will have access to all the updates, resources and to the online Knowledge Exam. Once you have successfully completed the course and have become a certified CPS Educator, you will be provided with full access which includes online activity reports and the competency review.

If you are not already registered, register by:

- Going to [bcps.drivefit.ca](https://bcps.drivefit.ca)
- Choose **Register as a student**
- Complete and submit the online form
- Check your email for a link. No password is required (Note: for security purposes the access link will expire after 2 weeks, and you'll need to request access again)

### Educator Tip

Review this manual, videos, resources on BCAA CPS Educator Community ([bcps.drivefit.ca](https://bcps.drivefit.ca)) regularly to be sure your knowledge and skills remain current.

## Certification and Evaluation

On successful completion of the course you will receive a certificate of completion by email. In that email you will be provided a link to complete the course evaluation. The evaluations are very important to the BCAA CPS program as they strive to offer a robust learning experience that will prepare others to incorporate CPS education into their work. The evaluation is anonymous and all are read and if appropriate, acted upon. Previous evaluations led to changes that have improved the learning experience, for example:

- Reorganizing the course structure moving to a blended mode of delivery
- Incorporating evidence-based instructional design in the organization of the curriculum
- The organization and implementation of the hands-on session.

## Activity

- ✓ Access the [BCAA CPS Educator Community](#)
- ✓ On the home page, scroll down to Educator Resources and click on View Resources.
- ✓ Find and familiarize yourself with the following:

### BCAA CPS Educator Community User Guide

- a. Find the **About BCAA CPS Educator Community** section.
- b. Choose the *BCAA CPS Community User Guide* from the list.
- c. Open the document and do a quick review to familiarize yourself with the content. Pay particular attention to the **Activity Reports and Competency Review** sections as you will need to refer to these instructions when you become an Educator.

### CPS Educator II Course—Student

- a. Scroll down to **CPS Educator II Course — Student** section
- b. Find the *BCAA CPS Educator II Student Manual* which is available if you want to access the manual online or lose your print manual. This will be the most updated version.
- c. Find the *BCAA CPS Educator Practice Standards*.

### CPS Educator II Course—Student: Video Links

- a. The video links are organized in the order they appear in the manual and include the manual unit in the name.

## SECTION A

# CPS Foundations

This section provides the information that forms the foundation of knowledge needed to be a CPS Educator. Work through this section, Units 1 to 6:

- ✓ Watch the videos
- ✓ Complete the activities
- ✓ Review the key points



## UNIT 1

# Understanding Crash Dynamics

## Objectives

This unit covers standards under sections 2.1 and 2.3 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, you will be able to:

- Describe Newton's First Law of Motion and how it relates to vehicle motion in a crash
- Describe the relationship between force and injury
- Explain what happens to secured and unsecured occupants in a motor vehicle crash
- Explain how injuries occur to occupants in a motor vehicle crash
- Explain factors that decrease occupant injuries in a motor vehicle crash

## Topics

- What happens to the vehicle in a crash
- Newton's First Law of Motion
- Forces
- What happens to the occupants in a crash
- How occupants are injured in a crash



# What happens to the vehicle in a crash

The dynamics of a crash are complex and to look at them in detail is beyond the scope of this course. However, knowing some basic information can help you understand the purpose and function of occupant protection systems.



When a crash happens, everything inside the vehicle will move toward the point of impact. For example, if a vehicle is hit from the front head-on, all the occupants and loose objects in the vehicle will move in that direction until they either stop or are impacted by a rebound force. When a vehicle rolls over, the direction of movement is more chaotic and unpredictable.



To start, watch the video [Understanding Car Crashes: It's Basic Physics](#), developed by the Insurance Institute for Highway Safety (IIHS) (25 min). This video not only covers the basic physics of what happens in a crash but it also allows you to see various car crashes in a testing facility. While watching the video focus on the following:

- Newton's Law of Inertia (Motion)
- The forces in a crash
- How injuries happen
- How occupants are protected

Don't worry about remembering the terminology, formulas or equations, you aren't expected to be a physics expert!

Following are the main concepts to remember related to car crashes because they play an important role in understanding and preventing injuries.

## Educator Tip

To help others understand the risk of injury in a crash, it can help to explain that their child will be moving at the speed of the vehicle—a concept most people don't think about.

## Newton's Law of Motion

AN OBJECT IN MOTION REMAINS IN MOTION AT THE ORIGINAL SPEED UNTIL ACTED ON BY AN OUTSIDE FORCE

Everything in a moving vehicle, including occupants, is traveling the same speed as the vehicle and will continue to do so until stopped by a seat belt, harness, interior of the vehicle or something outside the vehicle. So if the vehicle is traveling at 100km/hr, so are all the occupants.

## Forces

As you saw in the video, force and kinetic energy are complex concepts that are inherent in a crash. For the purpose of this course, we use the term forces to include both force and kinetic energy. The important points to understand related to force are that:

- All crashes produce some amount of force and it's this force that causes injuries
- Decreasing the force, even a small amount, will decrease the potential for, and severity of, injuries.
- Extending the time of impact or increasing the time it takes for a vehicle to stop, decreases the forces. Just like the egg demonstration in the video.

"LESS FORCE = LESS INJURY"

## What happens to the occupants?

Remember that in a crash, occupants are traveling at the same speed as the vehicle and when a vehicle crashes, the occupants will continue moving at this speed toward the point of impact. It's these forces that cause injuries to the occupants.





To gain a better understanding of what happens to the occupants and how they are injured, watch the IIHS video [Understanding Car Crashes: When Physics Meets Biology](#) (8 min). Start at 9:00 min and end at 17:00 min (when the video starts to talk about how to prevent injuries). You will return to this video later in the course.

This section of the video covers some of the information in the first video but focuses more on what happens to occupants and how injuries occur. And don't worry about the parts of the body or the names of the injuries, just focus on what happens to occupants and the concept of how serious injuries happen.

The main concepts to remember from this video are:

- There are three collisions that happen in a crash: vehicle, human and internal
- The high forces in a crash result in stress to the internal organs that can lead to serious injury – right down to the cellular level!

In a crash at just 60 km/h, unrestrained occupants are thrown forward with a force 30 to 60 times their body weight. This is equivalent to the forces in a fall from a three-story building!

Before moving on to Unit 2, review the Key Points for Unit 1 below.

## Key Points: Unit 1

To review, here's what is important to remember when it comes to understanding crash dynamics:

- Occupants in a vehicle are traveling at the same speed as the vehicle and will continue to travel at that speed until stopped by an outside force
- Force causes injuries
- There are three collisions in a crash: vehicle, human and internal
- Serious injuries occur during the internal collision
- The risk of injury is decreased by:
  - Extending the time of impact or increasing the time it takes for a vehicle to stop
  - Decreasing the forces on an occupant

## UNIT 2

# Occupant Protection

## Objectives

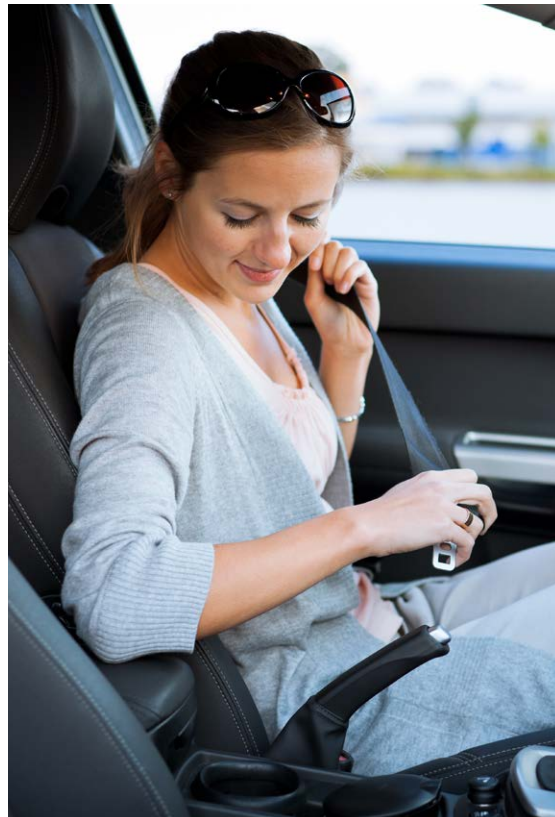
This unit covers standards under section 2.2 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, you will be able to:

- Describe the purpose and function of the main safety features built into a vehicle
- Describe how a seat belt works
- Describe how airbags work
- List the possible locations of airbags built into a vehicle
- Explain the difference between the frontal airbags and other airbags in a vehicle
- Explain how to be seated correctly in seating positions with airbags
- Explain the importance and correct use of head restraints
- Describe how an active head restraint works

## Topics

- How occupants are protected
- Crush zones
- Seat belts
- Airbags
- Head restraints



**To decrease the risk and severity of injuries, vehicles are built with several safety features.**



Continue to watch the IIHS video, [Understanding Car Crashes: When Physics Meets Biology](#) (6 min), starting at 17:00 min. This section focuses on how occupants are protected. Again, don't worry about the terminology or formulas, just get an idea of what protections are built into a vehicle and generally how they prevent injury.

To review, here's what is important to remember when it comes to understanding occupant protection built into a vehicle:

- Key to reducing injuries is reducing the forces experienced by the occupants, by increasing the ride down time or the time it takes to come to a complete stop.
- How crumple (crush) zones, seat belts and airbags increase ride down time and work together to decrease the forces on an occupant.
- Increasing the area a force is applied over, decreases the pressure and hence the injuries to the occupant.

As the video demonstrates, there are many features in a vehicle to protect occupants. Let's take a closer look at the main occupant protection features built into the vehicle: crush zones, the seat belt, the air bag and head restraints.

## Crush zones

As you saw in the crash tests in the video, engineered crush or crumple zones are sections of a vehicle that are designed to crush on impact. It is a very important part of decreasing the forces in a crash, as it increases the ride down time and allows the forces to be absorbed by the vehicle itself, decreasing the forces on the occupants and the potential for injury.



## Seat belts

Seats belts are the primary protection for vehicle occupants and are designed specifically for adults. They have proven to be the most important safety device in cars and trucks.

As you know, the basic concept of a seat belt is simple: wearing a seat belt keeps occupants in their seat.

This protects them from:

- Hitting objects or other occupants in the vehicle
- Being ejected
- Being out of position, maximizing the protection of airbags
- Contributing to increasing the ride down time

And occupants secured with seat belts benefit from the more gradual slowing down provided by the engineered crush zones.

According to data collected by Transport Canada, BC has one of the highest rates of seat belt use in the country: almost 97% (Transport Canada 2011)



*An inflatable seat belt will have a label on the webbing*



*Image courtesy of Transport Canada*

There are two main types of seat belt systems: lap-only and lap/shoulder belt. All new vehicles sold in Canada are equipped with lap/shoulder belts in all seating positions. But some older vehicles still have lap-only belts, often in the middle rear seating position. The lap/shoulder belt provides the best protection in a crash and therefore is the preferred system for occupants using the seat belt only and for children using a booster seat.

There are seat belts that have an inflatable cushion built into them that inflate during a crash — like an airbag. These are called **inflatable seat belts** and are found in the seat belts in the outboard rear seating positions. These are designed to spread the forces of the crash over a wider area on the chest and hence decrease injuries that can happen from the seat belt. They also cause the seat belt to tighten more, reducing forward movement.

With new advances in seat belts that address the same issue that inflatable seat belts were intended to, less manufacturers are providing them as a standard feature.

## How do seat belts work?

A seat belt consists of many moving parts and sensors. In your work as a CPS Educator, the main components you need to know are the following:

### Webbing

The fabric that makes up the seat belt itself.

### Retractor

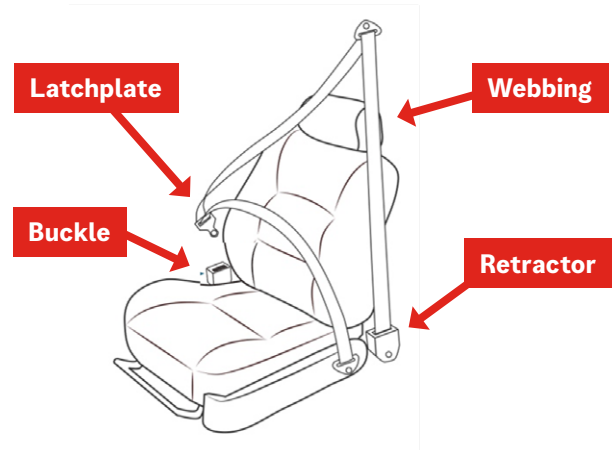
Where the webbing is stored and locks in a crash. All lap/shoulder belts and some lap only belts will have a retractor.

### Latch plate

The metal tongue that clicks into the buckle.

### Buckle

Secures and releases the latch plate.



Watch the video [60 Second Driver – Seat belts](#) (1 min). This video provides a good overview on how a seat belt works.

As the video points out, seat belts are designed to tighten and lock during a crash to provide the best protection. This keeps the occupant in position and takes advantage of the ride-down time provided by the crush zones.

Though designed to lock automatically in a crash or pre-crash, a seat belt must be locked manually to use with a child car seat. You will learn how to lock a seat belt in the skills section of this course.

# Airbags

Airbags are an important supplemental protection that work best when used with seat belts. To work in child passenger safety, it is important to understand what they do, where they are located and the potential risk they pose.

## How airbags work

Airbags are inflatable cushions, built into a vehicle to protect occupants during a collision from hitting:

- Hard parts of the vehicle interior, such as the steering wheel, dashboard, or metal frame
- Other occupants
- Objects outside of the vehicle.

Airbags are complex, computer-controlled devices that are activated by sensors built into the vehicle that sense the direction of the impact and measure its severity. Some vehicles also have sensors in the seatbelt and will activate the airbags in the front sooner if the occupant is not wearing a seat belt. If the impact is severe enough, the sensors signal inflators to fill the airbags with gas in a fraction of a second.

Airbags are a one-use item: they must be replaced if they have deployed. And airbags cannot smother you and they do not restrict your movement.

The “smoke” that is seen after an airbag deploys is the nontoxic starch or talc that is used to keep the insides of the airbag from sticking together

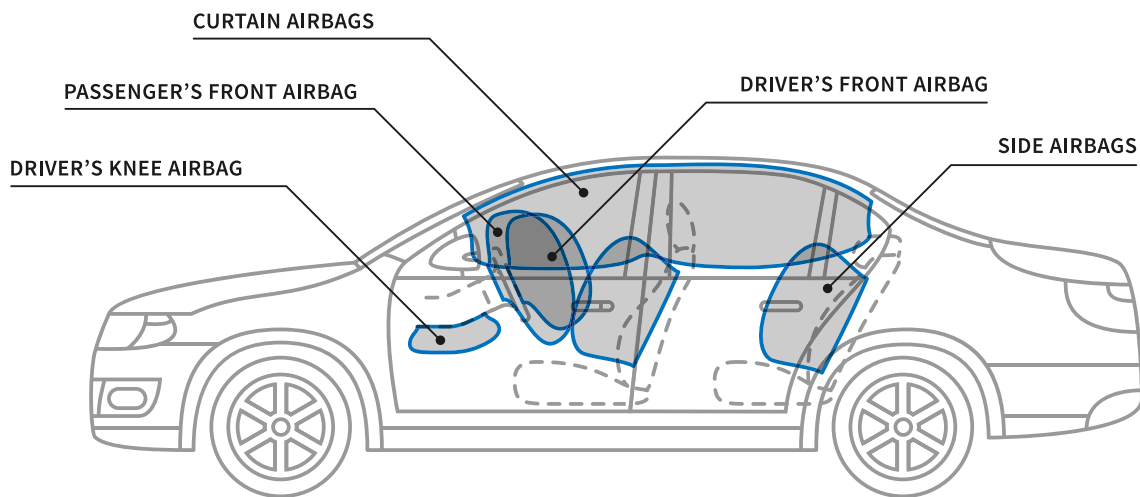


There are some things to know about airbags to ensure they function the way they are intended and to prevent injuries. This short video by IIHS [Avoiding Airbag Injuries](#) (1 min) covers these points.

## Where are airbags located?

Most vehicles have multiple airbags. They vary in size, performance, and location. Common locations include:

- Steering wheel
- Under the steering wheel, at knee level
- Dashboard directly in front of the passenger
- Under the dashboard on the passenger side at the knee level
- Door panel
- Sides of the seats
- Roof of the vehicle
- Over the windows



The location of each airbag is usually identified by a marking or label with the words Airbag and/or SRS (Supplemental Restraint System). The vehicle's owner's manual will provide information on the type and location of the airbags in a specific vehicle.



Following is more detail on the two types of airbags that are important to child passenger safety: frontal and side airbags

## Frontal airbags

Though there can be several airbags protecting the front seat occupants, the primary ones, located in the steering wheel and dashboard are referred to as the frontal airbags. These airbags are in all vehicles manufactured after 1998.

Airbags in the steering wheel and dashboard are designed to deploy when the force comes from the front of the vehicle (i.e. hits a brick wall) at speeds as low as 13 km/h. They are designed to cushion front-seat occupants as they move forward at the time of impact. This increases the occupants' ride-down time as they 'sink' into the inflated airbag and protects them from hitting hard parts of the vehicle, i.e., steering wheel and dashboard. These airbags have vents in them that allow the airbag to deflate very quickly after they've reached full inflation.



Frontal airbags inflate at an extremely high speed: as much as 320 km/h. This force is the greatest in the first 8 cm (3 inches) from where the airbag comes out. This is considered the **risk zone** because a person within that zone when the airbag deploys can be seriously injured or killed. To keep occupants safe, Transport Canada recommends that front-seat occupants sit, properly restrained, 25 cm (10 inches) away from where the front airbag comes out.

Though not common, frontal airbags are not safe for everyone so there are two ways an airbag is turned off:

- Automatically in vehicles equipped with sensors in the front passenger seat that turn the airbag off when the passenger is below a certain weight, though it is not recommended to rely on this when children are using the front passenger seat.
- Manually in vehicles equipped with an on/off switch or when an on/off switch has been installed.

While most occupants would not benefit from turning the airbag off, Transport Canada states there are certain drivers and passengers who are safer with the airbags turned off:

<b>Rear-facing child car seats</b>	A rear-facing seat must <b>never</b> be placed in the front passenger seat unless the airbag is deactivated or is manually turned off. Seats with airbags that automatically 'turn off' are considered active and hence should not be used for rear facing child car seats.
<b>Drivers or passengers with unusual medical conditions</b>	These are people who have been informed by a physician that an airbag poses a special risk to them because of their condition. It also includes infants and children who have a medical condition and need to sit in the front passenger seat so the driver can monitor them

For a more detailed description of the circumstances under which airbags should and should not be deactivated, visit [Transport Canada's](#) website.

#### **Educator Tip**

If you are asked about medical conditions and occupant protection, you should direct the person to speak with their physician or other health care professional.

### **Side airbags**

Most vehicles come equipped with side airbags in both the front and rear seating positions. These airbags will deploy when:

- The force comes from the side of the vehicle (i.e., the vehicle is hit from the side)
- In some front collisions
- In some cases if it senses the vehicle is rolling over.

Side airbags come in various sizes and shapes but are smaller than frontal airbags. Though they also inflate with great force, because they are smaller, they don't have the same risk for serious injury as frontal airbags. However, they can cause injuries if an occupant, especially a child, is positioned with their body leaning against the area where the airbag comes out. Some of these airbags are designed to stay inflated longer than a frontal airbag to protect the occupant in those moments after a crash when the vehicle may still be in motion, i.e., rollover.

There are two main types of side airbags:

- **Torso airbags** – come out from the side of the seat or the door and protect the occupant's torso, i.e., pelvis and abdomen. Some vehicles come with a torso airbag between the front passengers to prevent them from hitting each other.
- **Curtain airbags** – come out from above the window in the door or roof. These protect the occupant's head and chest from hitting the frame of the vehicle and objects outside the vehicle when the window shatters i.e., another vehicle, telephone poles, etc.

Some vehicle manufacturer's do not allow child seats to be installed in seating positions with side airbags, you **must** always check the owner's manual to determine if these seating positions can be used.

## Head restraints

Head restraints or head rests are often not recognized as an occupant protection system, but they can reduce the risk of neck, head, and back injuries i.e., whiplash, concussion, which are the most common injuries in a crash.

Like other occupant protection, changes have been made to head restraints in recent years. One of these improvements is the active head restraint where the force in a rear crash causes the head restraint to move up and forward to decrease the distance between the occupant's body and back of the seat. It's important to not put anything over an active head restraint i.e., jacket, tether strap.

Once an active head restraint has been activated, it must be replaced or reactivated. Directions for reactivation can be found in the vehicle's owner's manual.



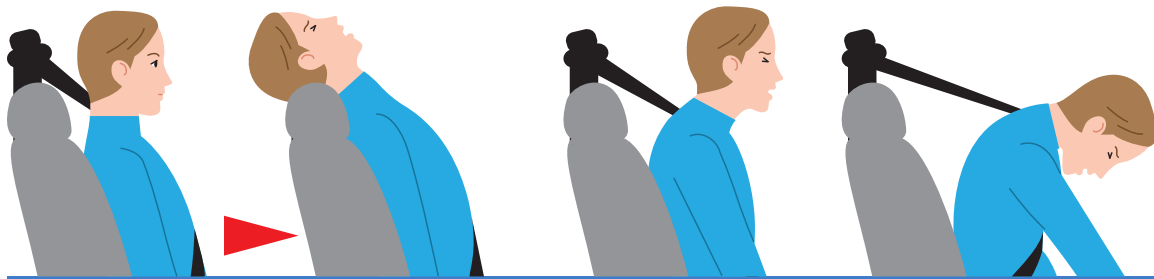
Watch the ICBC video [Head Restraint Systems](#) (1:24 min).

Remember the correct positioning of a head restraint:

1. No higher than the top of your head
2. No lower than the top of your ears
3. As close to the back of your head as possible



The following images compare the head and neck movement in a rear end collision between incorrect and correct positioning of the head restraint:



*Incorrect position of the head restraint results in the occupant's head extending back over the back of the seat increasing the risk for neck injury*



*Correct position of the head restraint limits the movement of the occupant's head, decreasing the risk for neck injury*

## Safety features and children

There are special considerations for children when it comes to protecting them from the risks inherent when they are passengers in a motor vehicle. The next unit will discuss these considerations.



## Activity

Look up the occupant protection information in your vehicle's owner manual and determine:

- What type of airbags the vehicle has and where they are located
- Does the vehicle have active head restraints?
- What information is provided about seat belts?
- Does the vehicle have inflatable seat belts?

If you don't have a vehicle owner's manual, or would like to look at other manuals you can find some online under most manufacturer's websites. There are also links to a variety of vehicle manuals in the student section of the [Community](#).

## Key Points: Unit 2

To review, here's what is important to remember when it comes to occupant protection:

- There are many safety features built into a vehicle to decrease the risk of injury
- The most important things to be aware of when working in CPS are seat belts, airbags, and head restraints
- You should refer to the vehicle owner's manual to determine important information related to safety features including the location of airbags
- Seat belts are designed for the average sized adult

## UNIT 3

# Special Considerations for Child Passengers

## Objectives

This unit covers standards under sections 2.3, 2.6 and 2.7 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, you will be able to:

- Explain the reasons why child passengers differ from adult passengers
- Explain the 3 factors that make a seat belt not safe for a child under 145 cm (4'9")
- Describe the dangers an air bag poses to children seated in the front passenger seat
- Describe the safest seating position for a child in a vehicle

## Topics

- Children and seat belts
- Children and airbags
- Vehicle seating position



## Now that you've looked at the safety features built into a vehicle, let's look at things to consider for child passengers.

In British Columbia it is a driver's responsibility to ensure that children under 16 years old are appropriately protected while travelling in a vehicle. This requires knowing about the special considerations for children in relation to seat belts and airbags, and which protection system to use.

## Seat belts, airbags, and seating position

Because a child's body is smaller and differently proportioned than an adult, and they tend to move around more while in a vehicle, there are some specific risks for children. These differences between children and adults contribute to making motor vehicle collisions one of the leading causes of accidental death for children in Canada.

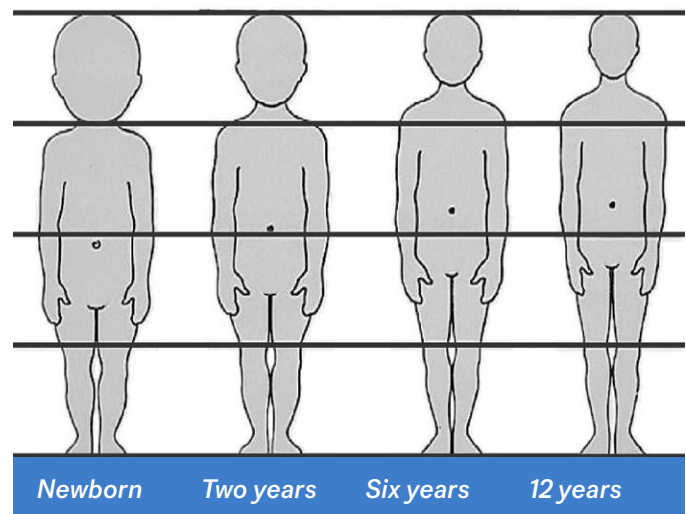
### Seat belts

Seat belts are designed for the average adult male. They are not well suited for children who are less than 145 cm (4'9"). Three important factors related to a child under 145 cm (4'9") being secured in a seat belt are head size, leg length and shoulder belt discomfort.

#### Head Size

Compared to an adult, a child has a larger head in relation to the body. The diagram on the right shows how the relative size of the head decreases as a child grows, reaching adult proportions at approximately age 12.

The child's muscles and bones are also not fully developed. These factors make a child more susceptible to injury, as the forces of a crash cause the head to whip forward.



## Leg Length

A child's legs are often too short to sit comfortably on the vehicle seat. To be comfortable, children often slide forward (slouch) or put the shoulder belt behind their back or under their arm.



*The shoulder belt rubs on the neck, and the lap belt lies across the abdomen incorrectly*

Slouching puts the seat belt out of position: the shoulder belt rubs on the neck, while the lap belt rides up above the hip bones and over the abdomen.

When a child is too short for the seat belt, the shoulder belt rubs on their neck which causes discomfort. In response, the child often puts the shoulder belt behind their back or under their arm. This can cause serious injury in a crash as the upper portion of the body is thrown forward, stressing the spine, and potentially injuring the head.

The abdomen contains organs and vessels — liver, spleen, large blood vessels, and intestines. There is no bony protection for these organs. With the lap belt over the abdomen instead of the hip bones, these organs are vulnerable to serious injury from the pressure of the lap belt in a crash.

A child's bones are also more pliable than adult bones, allowing the forces of a crash to squeeze their bodies, which could cause them to slip out of the improperly fitting seat belt system.

## Airbags

As previously discussed, airbags deploy with great force and can seriously injure or even kill a person caught in the risk zone. This is even more important with child passengers. They are at a higher risk for injury due to their small size and their tendency to move around in the vehicle.

**This is especially important to note with children seated in the front passenger seat.**

Children in this age group tend to move around when seated in a vehicle. This can result in them being in the risk zone when an airbag deploys. The simple act of leaning forward to adjust the heat or audio can momentarily place even a belted child in danger.

Installing a rear-facing child seat on the front vehicle seat is particularly dangerous as it puts the child directly in the risk zone. In this case, a deployed airbag will hit the back of the child car seat and this force can cause devastating injuries or even death.

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Watch the video [Rear-facing car seat vs. Front passenger airbag](#) (0:16 min).

As you saw in the video, a rear-facing child seat should only be installed in the front passenger seat of a vehicle when the airbag has been manually turned off or deactivated. This should only be done when necessary, i.e. there is no safe rear seating position in the vehicle. **Note if the airbag is turned off by the weight sensor, this is not considered deactivated.** It must be turned off manually by a switch or professionally deactivated.

Another important factor to consider is that if a forward-facing child seat is used in the front passenger seat, the weight sensor can remain activated even when the child is under 29 kg (65 lb). For this reason, you should make sure the front seat is pushed all the way back to ensure it is far enough away from the airbag risk zone.

## Vehicle seating position

The vehicle seating position is important to consider for protecting children. The safest seating position will depend on the age and size of the child, the type of occupant protection needed as well as the instructions in the vehicle and child seat owner's manuals. This decision can become complex, particularly in older vehicles. For this reason, each situation needs to be assessed individually.

Here are some general principles to follow:

<b>Children 12 years old and under in the rear</b>	There have been more advances in protecting occupants in the front seating position in recent years, however, in most situations it is still recommended that children 12 years old and under ride in a rear seating position of the vehicle (i.e. backseat). This avoids the risk of injury from the front airbags and puts the child away from the point of impact in a frontal collision.
<b>Middle rear is usually the safest</b>	The middle seating position of the vehicle is considered the safest rear seat. This position is away from the sides of the vehicle, thus minimizing injuries from a side impact crash. It is also away from the side airbags, which, as they deploy, can injure a child leaning against them.
<b>If there is a lap-only in the middle rear seat, place a child seat there</b>	If the middle seating position has a lap-only seat belt, it is recommended that it should only be used to secure a child car seat.
<b>Lap/Shoulder for a Booster seat</b>	When securing an older child in a booster seat, a lap/shoulder seat belt must be used. If the only available lap/shoulder is in the front seat then they must sit there, even if that means an adult must move to the back seating position.
<b>Adjust front passenger seat far back</b>	If using the front passenger seat, the vehicle seat should be adjusted back as far as possible from the dashboard.
<b>Turn the airbag off when possible</b>	When positioning a child 12 years old or under in the front passenger position with an airbag on/off switch, turn the switch to the "off" position.

### Most vulnerable passengers in the safest position

When there are multiple child passengers:

- Determine the safest protection needed for each child
- Determine the type of seat belt in each seating position
- If the middle rear seat has a lap belt only:
  - If there are child seats, place a child seat there. If there are multiple child seats, place the most vulnerable child in this position, usually the youngest.
  - If there are no child seats, don't use this seat unless absolutely necessary i.e. there is no other seating position and no other vehicle available. If you must use it, put an adult or the oldest, least vulnerable child in this seating position.
- If the front passenger seat needs to be used, put the least vulnerable child in this seat. This is not always the oldest: it might be the most mature child that is using the seat belt or a forward-facing child seat, if there is a tether bolt to attach the top tether to, or a booster seat.

## Key Points: Unit 3

To review, here's what is important to remember when it comes to child passengers:

- Because of their size, proportion and maturity level, child passengers have specific risk factors when using seat belts, airbag and vehicle seating position
- Children 12 years old and under should be seated in a rear seating position whenever possible. If not possible the airbag should be turned off if possible and the seat moved as far back as possible
- Middle rear seating position is usually the safest seat for child passengers
- A rear-facing child car seat must never be installed in a front passenger seating position
- When traveling with multiple child passengers, the most vulnerable child should be seated in the safest seating position

## UNIT 4

# Child Passenger Protection

## Objectives

This unit covers standards under section 2.4 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, you will be able to:

- Explain the purpose of a child car seat
- List the different types of child car seats available for:
  - Rear facing
  - Forward facing
  - As a booster seat
- Explain that all child car seats are manufactured to meet the same safety standards
- Explain additional training is needed to work with occupant protection for children with special transportation needs

## Topics

- Keeping child passengers safe
- Types of child car seats that can be used
  - Rear facing
  - Forward facing
  - Booster seats



Because of the specific risks posed to child passengers, children under 145 cm (4'9") must use special protection systems: child car seats. Child car seats are specifically designed to protect a child's body in a crash. Since the weight, height, proportion, and muscular development of children changes as they grow, a variety of child car seats are needed for the different stages of the child's life.



Watch the video [Keeping children safe in crashes: Overview](#) (3:52 min).

Though this video is older, the principles of why children need special protection still applies. While watching the video keep in mind that it was produced in the US and so it uses some different terms and stats than used in Canada.

**The main points to remember from this video are:**

- A child car seat keeps the child in position and prevents ejection
- Child car seats take advantage of the 'ride-down time' provided by the vehicle's crush zones
- It is dangerous to use a rear-facing child car seat in the front passenger seat

This unit discusses the different types of child car seats.

## Types of child car seats

As you saw in the video child car seats are designed to be used in different modes:

- Rear facing: the child faces the back of the vehicle.
- Forward facing with harness: the child faces the front of the vehicle.
- Booster seat: forward facing without the harness, using the vehicle seat belt

Some child car seats can only be used in one mode and others can be used in multiple modes. All child car seats have weight and height ranges for each type of use. In addition, some seats will have minimum age limits for specific uses.

Though all child car seats are manufactured to meet the same safety standards, their features can differ. These features often don't increase the safety of the seat.




Let's look at which types of child car seats can be used for the different modes of use.

## Rear-facing seats







A rear-facing child car seat spreads the crash forces throughout the large area of the child's back and head, plus the back of the seat. This reduces the force on the front of the child's body during a collision and protects the head from snapping backward. Watch the Children's Hospital of Philadelphia's [Simulation of an 18-month old Rear-Facing Versus Forward-Facing](#) (0:09 min) to see why it is best practice to **keep a child rear-facing as long as possible**.

There are three types of child seats that can be used rear-facing:

Infant Only	Infant/Child	Infant/Child/Booster
		
<p>Can only be used rear facing. They are commonly used for newborns as they provide the best fit. Most people find it more convenient, as the seat has a handle, to carry it to and from the vehicle.</p> <p>Most infant seats have a detachable base, though some can be purchased without the base. And some seats that come with a base can be installed without the base, refer to manufacturer's instructions.</p>	<p>Both these child car seats can be used rear facing. The Infant/child seat is sometimes called a convertible seat because it can convert from rear to forward facing. The infant/child/booster seat is sometimes called a 3-in-1 or 4-in-1 seat because it can be used rear and forward-facing and as a high back and no-back booster seat.</p> <p>Though they can be used for an infant, they are typically used when a child outgrows their infant seat.</p>	

Forward-facing seats






Once a child reaches the rear-facing weight or height limit for the infant/child or infant/child/booster seat they can move into a forward-facing seat using the seat’s internal harness. **It is best practice to keep a child forward-facing with the harness system as long as possible — as it’s safer for the child.** There are three types of seats that can be used forward-facing:

Infant/Child Infant/Child/Booster	Child/Booster	Built-In Seats
<div></div> <div>Infant/child</div> <div></div> <div>Infant/child/booster</div>	<div></div>	<div></div>
<p>These seats can turn around and be used forward facing when a child exceeds the weight and height limit for rear facing. Some seats have a minimum age for forward facing — usually two years. This is to support rear facing for as long as possible.</p>	<p>This seat can be used forward facing when a child grows out of their rear-facing seat. They are sometimes called combination seats because they combine forward facing with a harness and without the harness as a booster seat. As with other seats there are weight and height ranges for forward facing.</p>	<p>These are forward-facing child car seats with a harness that comes built into the vehicle seat.</p>

## Booster seats

Once a child outgrows their forward-facing seat, they can use a booster seat with the vehicle's lap/shoulder seat belt system. A booster seat is designed to allow the adult seat belt to correctly fit a child. Most of these seats currently available boost a child up so that the adult seat belt will fit correctly. There is at least one booster seat that is designed to pull the seat belt down to make the seat belt fit correctly rather than boost the child up. These seats also have weight and height limits. However, **remember it is best practice to keep a child forward-facing with the harness system as long as possible.**

The seats that can be used as a booster seat are:

Infant/Child/Booster Child/Booster	No-Back Booster High Back Booster	Built-in booster
 <p>Infant/child/booster</p>  <p>Child/booster</p>	 <p>High back booster</p>  <p>No-back booster</p>	
<p>These seats can be used as a booster seat when the child exceeds the weight and height limits of the forward-facing mode for the seat. When used as a booster, the harness is removed.</p>	<p>Both types of booster seats can be used when a child exceeds the weight of a forward-facing seat.</p> <p>A child must weigh at least 18 kg (40 lb) and must only be used with a lap/shoulder seat belt.</p>	<p>These booster seats are built into the vehicle seat. As with other seats there are weight, age, and height limits for their use. You must follow the vehicle owner's manual.</p>

In addition to the above seats, there are protection systems specifically designed for children with special transportation needs. Although this course does not cover child seats for children with these needs, it is helpful to recognize the different types of seats.



*Car seat for child with disabilities*



*EZ-on vest for child with disabilities*



*Car bed for child with special transportation needs*

Some look like regular child car seats but they are much larger and are often used with foam support. To access car seats for children with special transportation needs and disabilities, parents or caregivers must consult a physician or other health care professional.

For information on related courses or questions about children with special transportation needs and disabilities, call the BCAA Child Passenger Safety Info Line at 1.877.247.5551.

## Key Points: Unit 4

To review, here's what is important to remember about child passenger protection:

- Child car seats:
  - Keep a child in position and prevents ejection
  - Take advantage of the 'ride-down time' provided by the vehicle's crush zones
  - Are dangerous to use rear facing in the front passenger seat
- Child car seats are designed to be used in different modes:
  - Rear-facing, forward-facing and as a booster seat
- The names of the different types of child car seats and their mode(s) of use:
  - Infant Seat                      rear facing only
  - Infant/Child                    rear and forward facing
  - Infant/Child/Booster        rear and forward facing and as a booster seat
  - Child/Booster                forward facing and as a booster seat
  - Booster                        a booster seat only (High and no-back)
- There are vehicles with built-in forward facing and booster seats
- All child car seats have weight and height ranges for each type of use – some seats will have minimum age limits for specific uses

## UNIT 5

# CPS Laws and Regulations

## Objectives

This unit covers standards under section 2.4 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, you will be able to:

- Name the federal laws and regulations governing occupant protection for children
- Explain the purpose of the CMVSS related to child car seats
- Describe the purpose of the National Safety Mark
- Describe how to determine if a child car seat is legal to use in Canada
- Describe who is responsible for the safety of child passengers under the age of 16 in British Columbia
- Describe the BC law related to the use of a seat belt as outlined in Section 220 of the BC Motor Vehicle Act
- Describe the BC laws for child passengers under the age of 9 years old as outlined in Division 36 of the Motor Vehicle Act Regulations

## Topics

- Federal laws related to vehicles and occupant protection
- The CMVSS related to child car seats
- BC laws related to child passengers



Before determining the right protection for a child passenger, you need to know something about the related laws and regulations. As you work through this unit, it's important to know that these laws are developed to meet the minimum standards for keeping child passengers safe: **best practice meets or exceeds these standards and should be the guidelines followed by BCAA CPS Educators.**

Before discussing these laws in more detail, it can help the discussion to have a basic understanding of the hierarchy of laws. First, laws are rules which a person or organization must legally follow. There are different forms of law and include: legislative law or statutes that are organized into Acts and subordinate laws or Regulations that provide more detailed rules on how to comply with the statutes.

Both the federal and provincial governments have laws related to child passengers in a motor vehicle. The federal laws set the rules related to the manufacturing and importing of vehicles and occupant protection, and the provinces and territories set the rules on how vehicles and occupant protection are used.

## Federal Laws

The federal laws or statutes are contained in the Motor Vehicle Safety Act. Basically, all you need to know to be a BCAA CPS Educator is that this Act exists and contains a set of standards called the Canadian Motor Vehicle Safety Standards (CMVSS). These are the standards and technical requirements that must be met by importers and manufacturers of everything to do with motor vehicles including child car seats.



All child car seats fall under one of the following CMVSS requirements:

- **CMVSS 213** Child (for a person who is 10-30 kg (22-65 lbs))
- **CMVSS 213.1** Infant (for a person who is less than 10 kg (22 lb))
- **CMVSS 213.2** Booster (for a person who is over 18 kg (40 lb))
- **CMVSS 213.3** Disabilities (for people with disabilities)
- **CMVSS 213.4** Built-in restraints
- **CMVSS 213.5** Special needs (for infants with special needs i.e., low birth weight babies)

It's the child car seat manufacturer's responsibility to test their product to ensure and provide proof that they meet these standards before they can be approved for use in Canada. A child car seat that has met these requirements must have a National Safety Mark label that states it complies with at least one of the above Canadian Motor Vehicle Safety Standards. The label indicates which CMVSS requirements it meets.



This **National Safety Mark (NSM)** indicates that this child car seat complies with CMVSS 213.1, which applies to an infant.

Only child car seats with a National Safety Mark (NSM) are legal to use in Canada. Seats purchased outside of Canada will not have the NSM

If a child seat can be used for different modes, then it will comply with more than one standard and therefore, you will see multiple CMVSS standards on the label. For example, the label on an infant/child/booster seat will have CMVSS 213, 213.1 and 213.2.

Another way to tell if a seat is approved for use in Canada is that the labels are written in both English and French. Some may also include Spanish, but the important thing is that seats for use in Canada will include French.

Transport Canada is the agency that establishes the federal regulations for all the federal Acts that are related to transportation in Canada. There are two regulations that relate to occupant protection: [The Motor Vehicle Safety Regulations](#) that provide specifics about all the safety features built into a vehicle and [the Motor Vehicle Restraint Systems and Booster Seats Safety Regulations](#), commonly called the RSSR that are specific to occupant protection for child passengers. Again, it's important you know these regulations exist and may periodically get updated by Transport Canada, but not that you know all the details.

## BC Laws

BC laws or statutes are set out in the BC Motor Vehicle Act. Again, you don't need to know these laws in detail, only that they exist and that there is a section — Section 220 — that states that a driver of a motor vehicle must ensure a passenger between 6 and 15 (under 16) is wearing a seat belt correctly.

Remember best practices exceed the laws when it comes to safety

The BC Motor Vehicle Act Regulations provide more detailed rules for children under nine years old in Division 36. In combination Section 220 and Division 36 state that **drivers are responsible for ensuring that all passengers under 16 years old are correctly secured in the vehicle.**

NOTE: Uber, Lyft, and other similar passenger-directed transportation services or ride-hail services, must comply with the BC laws. However, taxis are exempt though some companies require customers to comply with these laws.

Following are the laws related to child passengers under 9 years old covered under Division 36 of the Motor Vehicle Act Regulations:

Age	Protection System
<p><b>Up to one year old and 9 kg (20 lb):</b></p> <p>Secured in a rear-facing child car seat according to the manufacturer's instructions away from an active frontal airbag.</p>	 A photograph showing a baby lying in a rear-facing child car seat installed in a vehicle. The baby is wearing a light-colored outfit and a headband. The car seat is black and grey with a patterned fabric.
<p><b>At least one year old and over 9 kg (20 lb) to at least 18 kg (40 lb):</b></p> <p>Secured in a forward-facing child car seat according to the manufacturer's instructions with a harness system.</p> <p>May remain rear facing if allowed by manufacturer's weight limit.</p>	 A photograph of a young child sitting in a forward-facing child car seat. The child is wearing a blue long-sleeved shirt and blue jeans, secured by a black harness. The car seat is installed in a vehicle.
<p><b>At least 18 kg (40 lb) and under nine years old:</b></p> <p>Secured in a booster seat according to the manufacturer's instructions in a seating position equipped with a lap/shoulder seat belt up to their ninth birthday or 145 cm (4'9") tall.</p> <p>May remain in a forward-facing child car seat if allowed by the manufacturer's weight limit.</p> <p><b>OR</b></p> <p>Secured in the lap belt only, without a booster seat when there is no shoulder belt available in the vehicle.</p>	 A photograph of a young boy sitting in a booster seat. He is wearing a white polo shirt and blue plaid shorts, secured by a grey lap/shoulder seat belt. The booster seat is installed in a vehicle.
<p><b>Important</b></p> <p>The BC Law states you <b>MUST</b> use a child car seat according to the manufacturer's instructions</p>	

## Key Points: Unit 5

To review, here's what is important to remember when it comes to occupant protection:

- Transport Canada establishes the federal regulations related to child occupant protection
- All provinces and territories have their own laws that govern how occupant protection is used
- A child car seat without the National Safety Mark is not legal for use in Canada
- Best practice meets or exceeds these standards and are the guidelines followed by BCAA CPS Educators
- Drivers are responsible for ensuring all passengers under 16 are correctly secured in a vehicle
- BC law states that a:
  - Child under 1 years old AND 9 kg (20 lb) must be rear facing
  - Child over 1 years old AND over 9 kg (20 lb) be secured in a forward-facing child car seat BUT may remain rear facing if allowed by the manufacturer's weight limits
  - Child that weighs AT LEAST 18 kg (40 lb) be secured in a booster seat using a lap/shoulder seat belt but may remain in a forward-facing child car seat if allowed by the manufacturer's weight limits
  - If no lap/shoulder seat belt is available for a booster seat, a child over 18 kg (40 lb) can be secured in a lap only seat belt.
- BC law states you must use the child seat according to the manufacturer's instructions

## UNIT 6

# Choosing Child Passenger Protection

## Objectives

This unit covers standards under section 2.4 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, you will be able to:

- Explain the basic principles related to best practice for determining what type of child car seat to choose
- State the type of occupant protection needed for a child under 16 years old
- Explain the importance of age, weight, and height as it relates to choosing a child car seat
- Describe the four steps to take when choosing a child car seat for a child under 145 cm (4'9")

## Topics

- Choosing a child car seat based on a child's age and weight
- Checking a child car seat to ensure it:
  - Meets the CMVSS standards
  - Has not expired
  - Has not been recalled
  - Has not been in a crash
- Ensuring the child is not too tall for the child car seat
- Checking the child car seat fits the vehicle



Now that you've looked at the different types of child seats and the laws related to child passengers, this section will look at the **best practices** related to choosing the correct child passenger protection. Remember, best practices go beyond the laws and regulations to include the most current practice for keeping child passengers safe.

## Overview

Some key points to remember when determining which occupant protection for a child is appropriate and supports best practice are:

- All child car seats in Canada meet the same safety standards
- A child should remain rear facing for as long as possible
- Once a child goes forward facing, they should remain forward facing in a harness for as long as possible
- Once a child has transitioned into a booster seat, they should remain in it until they've reached a height of 145 cm (4'9")
- A child under 145 cm (4'9") should be secured in a child car seat or booster seat no matter their age.

To determine which occupant protection system a child should use, first determine if the child is under or over 145 cm (4'9"). This is the most important step because serious injury and even death can result from a child being secured in an inappropriate protection system.

Height	Protection System
Under 145 cm (4'9")	Child car seat
Over 145 cm (4'9")	Lap/shoulder seat belt  Most children are between 10 to 12 years old by the time they are this height.

# Choosing the child car seat

For a child under 145 cm (4'9"), there are five steps to choosing an appropriate child car seat:

1. Choose the type of child seat based on the child's weight and age
2. Check the child car seat to ensure it:
  - a. Is approved for use in Canada
  - b. Has not expired
  - c. Has not been recalled
  - d. Has not been in a crash
3. Check the child to ensure they are not too tall for the child car seat
4. Check that the booster seat is appropriate for the child that will be using it
5. Check to ensure the child car seat fits the vehicle and is easy to use.

## 1. Choose the type of child car seat based on the child's age and weight

For a child under 145 cm (4'9") the type of child car seat will depend on the child's age and weight. It's very important to assess that the seat is a good fit for the child's age and weight. Following are the factors related to age and weight when choosing a child car seat:

### Age

Age is used as a consideration for two purposes: Newborns and manufacturer's age requirements.

It can be difficult to get a good fit for a newborn with some of the infant/child seats or infant/child/booster seats, even if the newborn is over the minimum weight. This is because the child seat needs to be large enough to accommodate children from newborn up to at least 18 kg (40 lb), which can make it difficult to get a snug fit for a newborn. It is recommended to secure a newborn baby in a seat designed for infants only or an infant/child seat that has been designed to accommodate a small infant.

Some manufacturers set age requirements for the mode of use.

**Child Restraint System**  
**Owner's Manual**  
 Keep for future use.

**Rear-facing\***

2.3 to 18 kg (5 to 40 lbs)
48 to 102 cm (19 to 40 in.)

**Forward-facing\***

10 to 29.4 kg (22 to 65 lbs)
71 to 127 cm (28 to 50 in.)
At least 2 years old

**Booster\***

18 to 54.4 kg (40 to 120 lbs)
112 to 145 cm (44 to 57 in.)
At least 4 years old

\* See page 2 for complete requirements.



For example, this child car seat requires a child to be two years old to move forward-facing and at least four years old to use it as a booster.

Note that these are minimum age requirements for these modes of use and does not mean a child must change to that mode at this age. It means they can't change before they reach this age. Weight is a better indicator for switching modes of use as long as the child is over the minimum age in the manufacturer's instructions. For example, with this seat, for a 2-year-old child who weighs 13.5 kg (30 lb), it would be recommended that this child remain rear facing up to 18 kg (40 lb).

Another important thing to know regarding age is that though the law states that a child can use a lap/shoulder belt at 9 years old, this is not best practice. **Most 9-year-olds are still under 145 cm (4'9") and hence too small to fit in a lap/shoulder seat belt.**

## Weight

Each child car seat has a weight range for its use. These weight ranges can vary between seats and overlap between the different directions of use.

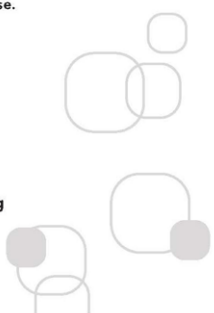
**Child Restraint System**  
**Owner's Manual**  
 Keep for future use.

**Rear-facing**

2.3 to 18 kg (5 to 40 lbs)
48 to 102 cm (19 to 40 in.)

**Forward-facing**

10 to 29.4 kg (22 to 65 lbs)
71 to 137 cm (28 to 54 in.)



For example, this is the owner's manual for an infant/child seat. As you can see, a child can use this seat rear-facing up to 18 kg (40 lb) but they can start to use it forward-facing at 10 kg (22 lb). This means that the seat is tested for use at these weights, NOT that it is recommended to use it in a specific direction of use for any given weight.

**Remember, it is always best practice to use a child seat up to the weight limit for the direction of use.** So, a child that weighs 15 kg (33 lb), should remain rear facing in this seat even though the seat has passed the testing for forward-facing at this weight.

Once you know the child's age and weight you can determine the mode of use and the most appropriate type of child car seat:

Age	Birth to 6 months	Over 6 months		
Weight	up to 15.8 kg (35 lb)	up to 22.7 kg (50 lb)	up to 29.5 kg (65 lb)	up to 54.5 kg (120 lb)
Mode	Rear-facing	Rear-facing	Forward-facing	Booster
Type of seat	Infant seat	Infant/ child or Infant/child booster	Infant/child, Infant/child/booster Child/booster	Infant/child/ booster Child booster Booster (low/high)

Remember:

- Weight limits vary amongst different manufacturers. You must always refer to the weight limit of the child seat itself to decide if the seat is appropriate for the weight of the child.

**It is best practice to remain in a particular mode i.e., rear facing, forward facing, booster up to the weight limit for that mode on the seat being used.**

## 2. Check the child car seat

Once you've determined the appropriate child car seat, you need to make sure the seat:

- Is approved for use in Canada
- Has not expired
- Has not been recalled
- Has not been in a crash

### Approved for use in Canada

As mentioned previously, all child car seats approved for use in Canada must have a National Safety Mark. If you can't find a National Safety Mark, or any statement confirming the seat meets the Canadian Motor Vehicle Safety Standards (CMVSS), then you can't confirm it is approved for use in Canada. If you come across a situation where a seat is being used that is not approved or you can't confirm it, then it is your responsibility to inform the caregiver.

### Expiry dates

All child car seats, and booster seats sold in Canada have an expiry or useful life date, even though this is not required by regulation. It is important to ensure that the child car seat has not expired. Studies have shown that over time the plastic shell weakens. Expiry dates can be embedded in the plastic shell or put on the label that has the manufacturer's date and model number. However, some seats will have no expiry date on them. If there is no expiry date on the child car seat it can usually be found on the manufacturer's website, or the manufacturer can be contacted to determine if it's expired.



The primary reason manufacturers put an expiry date on child car seats is because over time the plastic breaks down with frequent use and exposure to sunlight. This is like the plastic chairs used outdoors. Over time they fade and become brittle.

Other reasons include:

- Labels on the products can fade and become hard to read
- Instruction manuals get lost
- Food, drinks, and other materials that get spilled on the webbing, buckles, adjusters and other parts may prevent them from working properly

People must not use child car seats and booster seats past their expiry or useful life date. Beyond this date, the car seat should be permanently discarded so look for recycling facilities in your community.

<b>Safety alerts (recalls)</b>	<p>Transport Canada provides safety alerts for child car seats that do not comply with a safety standard or have a safety defect. These alerts come with directions that could include:</p> <ul style="list-style-type: none"> <li>• To not use the seat and get a replacement,</li> <li>• To keep on using the seat but with some type of special instruction, i.e., remove back on a booster</li> <li>• That a replacement kit will be provided to fix the issue.</li> </ul> <p>The safety alerts should be checked to determine if a child car seat has been recalled or if there needs to be some adjustment made to ensure its safety. You will find a link to Transport Canada's safety alerts in the <a href="#">Community</a> under Links.</p> <p>Each recall notice states:</p> <ul style="list-style-type: none"> <li>• The model or models affected</li> <li>• The dates affected</li> <li>• The issue and the safety risk involved</li> <li>• What to do to fix the problem</li> </ul> <p><b>Registering a child car seat with the manufacturer ensures that the owner will receive notification if the child seat is ever recalled or has a safety issue.</b></p>
<b>Crash History of the seat</b>	<p>It is important to know whether the child car seat has ever been in a crash. The forces in a crash can seriously damage a child seat, yet often this damage is difficult to detect. Transport Canada recommends a child car seat be replaced if it has been involved in a crash, even if there was not a child harnessed in the seat at the time of the crash. If you're unsure about the need to replace the seat, contact the manufacturer to confirm.</p> <p>This is one reason why a person needs to be careful when planning to use a second-hand seat. If the seller or previous owner doesn't know if the seat has ever been in a crash, it shouldn't be used.</p>

### 3. Child is not too tall

All child car seats have height requirements. Though it is important to comply with the height requirements of a seat, it is commonly determined by where the child's head is in relation to the top of the child seat. To adequately protect a child's head, the requirements are different for rear and forward-facing modes of use:

#### Rear facing:

In most crashes, a rear-facing child seat moves toward the front of the vehicle. The child will slide toward the top of the child car seat even when harnessed correctly. To protect the child's head and neck, there must be enough room at the top of the child seat to allow for this movement. Therefore, when rear-facing, the top of the child's head must be 2.5 cm (one inch) or more from the top of the child car seat.



Many people are concerned with the length of the child's legs, particularly when rear facing, and the child's feet are up against the back of the vehicle seat. This has not been shown to be a risk for serious injury. In this case, the benefit of rear facing outweighs the risk of injury.

#### Forward-facing:

In most crashes involving a forward-facing child car seat, the child's head will move forward, away from the back of the child seat, and then rebound back against it. The back of the child car seat must be high enough to prevent the child's head from rebounding over the top of the seat. Therefore, when forward facing, the top of the child's ears must not be above the top of the child car seat.



To check if a child is the correct height for the child car seat, place the child in the child car seat and check where their head is in relation to the back of the child seat.

<b>Rear facing</b>	No higher than 2.5 cm (1in) from top of seat
<b>Forward facing</b>	Top of seat no lower than the top of child's ears

## Booster seats

To prevent serious injuries, a child's head must be supported when seated in a booster seat. If the top of the child's ears is higher than the back of the vehicle seat or head restraint then the child's head is not supported. Either a different seating position is needed, or the child needs a different booster seat e.g. high back booster.

If the top of the child's ears are higher than the back of a high back booster, they have outgrown that booster. Remember, If the child is over 145 cm (4'9") then this could be because they are ready to use the adult seat belt.

## 4. Booster fits the child

Another important factor to consider with booster seats is how it fits the child. There are booster seats on the market that are not appropriate for a small child and there are some that are uncomfortable for some children. An uncomfortable booster can result in the child moving out of position e.g. slouching, which impacts the ability for the booster seat to function correctly.



Watch the IIHS's [video](#) about the correct fit for a booster seat (1:34 min).

The child should try the booster seat out in the vehicle it will be used to ensure:

- The child's head is supported by the back of the vehicle seat
- The seat belt fits correctly over the child's shoulder and hips
- The seat belt guides are easy to use to get a correct fit
- The seat is comfortable for the child to sit in for long periods of time.

## 5. Child car seat fits the vehicle

It is important to check that the child car seat fits the vehicle(s) and is easy to use. If someone is buying a new child car seat, they should ask about the option of testing how the child car seat fits in the vehicle. Some retail outlets have demo vehicle seats in the store that can be used to try installing the child car seat. To try a child car seat:

1. Place the child car seat in the desired seating position, i.e., center rear seat, facing in the direction it is to be used: rear or forward-facing.
2. Check the child car seat owner's manual to see how much of the child seat must be on the vehicle seat or if any overhang is allowed. Generally, 80% of the child car seat should be on the vehicle seat, allowing for no more than 20% of the child car seat to hang over the end of the vehicle seat. However, some manufacturers require the child car seat to sit completely on the vehicle seat.
3. If the child car seat is going to be used rear facing, ensure that the back of the child car seat does not jam up against the back of the front vehicle seat.
4. Try installing the seat with UAS and the seat belt to determine the ease of use.

Remember, a rear-facing child seat is designed to pivot down and then up in a crash. To work properly, nothing must impede this movement that isn't part of the child car seat. If the front seat cannot be adjusted to allow enough space for this movement, the child car seat is not compatible with this vehicle seating position.

Note: You will get an opportunity to choose the appropriate child car seat for different sizes of children in the hands-on portion of this course.

## Product Registration

Another important point related to buying a child car seat is registering the seat with the manufacturer. This is important so the owner receives recalls and safety alerts as soon as they come out.

You should remind caregivers to ensure they do this important step. Most child car seats can be registered online and if that's not available all child car seats come with a registration card to complete and mail in.

**2.0 REGISTER**

**HOW TO REGISTER YOUR INFANT SEAT**

Please complete the following information regarding this Infant Seat:

Model Number : \_\_\_\_\_

Manufactured in : \_\_\_\_\_

Purchase Date : \_\_\_\_\_

The model number can be found on a label on the side of the Infant Seat. The manufactured date can be found on a label on the bottom of the seat.

Please fill out the prepaid registration post card attached to the safety harness and mail it today. In addition, we may find a need to update this instruction manual from time to time.

Child restraints could be recalled for safety reasons. You must register this restraint to be reached in a recall. Send your name, address and the restraint's model number and manufacturing

## Activity

Complete the **CPS Matching Exercise** in the BCAA CPS Educator Course: Student section of the Educator Resource section in the [BCAA CPS Educator Community](#).

### Key Points: Unit 6

- Best practices go beyond the laws and regulations to include the most current practice for choosing the occupant protection for child passengers
- When choosing the correct child car seat for a child passenger, you need to:
  - Know a child's age and weight
  - Check the seat:
    - Meets the CMVSS standards—has the National Safety Mark
    - Has not expired
    - Has not been recalled
    - Has not been in a crash
  - Ensure the child is not too tall for the child car seat
    - **Rear facing**—child's head is no higher than 2.5 cm (1 in) from top of child car seat
    - **Forward facing**—top of child car seat is no lower than the top of the child's ear
  - Check the child car seat fits correctly into the vehicle
    - Most or all the child car seat fits on the vehicle seat—check manufacturer's instructions for this requirement
    - Rear-facing seat has room to pivot down—i.e. is not jammed up against the back of the front vehicle seat
- A child should remain in a booster seat, until they've reached a height of 145 cm (4'9")
- A child car seat should be replaced after a crash, even if there was not a child harnessed in the seat at the time of the crash

## SECTION B

# Getting to Know Child Car Seats and Vehicles

This section provides more detail about child car seats and vehicles which will be needed to be a CPS Educator. Work through this section, Units 7 to 10:

- ✓ Read the content
- ✓ Watch the videos
- ✓ Complete the activities
- ✓ Review the key points



## UNIT 7

# Getting to Know a Child Car Seat

## Objectives

This unit covers standards under sections 2.4 and 2.6 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, students will be able to:

- Explain the purpose and importance of the child car seat owner's manual.
- Explain the importance, as a BCAA CPS Educator, of keeping up to date on updates to the primary parts of child car seats.

## Topics

- Child car seat owner's manual

### Child Restraint System

#### Owner's Manual

Keep for future use.

##### Rear-facing\*

2.3 to 18 kg  
(5 to 40 lbs)

48 to 102 cm  
(19 to 40 in.)

##### Forward-facing\*

10 to 29.4 kg  
(22 to 65 lbs)

71 to 127 cm  
(28 to 50 in.)

At least 2 years old

##### Booster\*

18 to 54.4 kg  
(40 to 120 lbs)

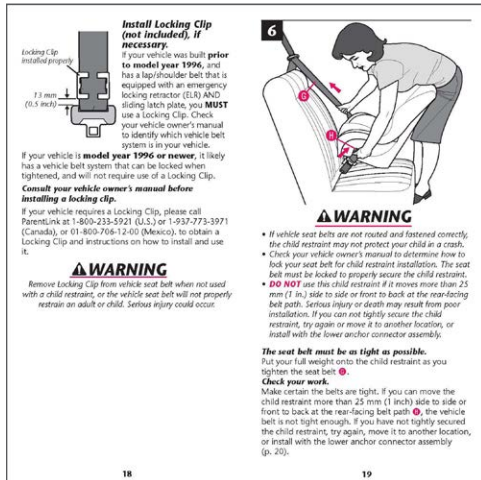
112 to 145 cm  
(44 to 57 in.)

At least 4 years old

\* See page 2 for complete requirements.



You don't need to know in detail about every child car seat on the market, but it is important you know where to find the information about a seat you are working with: The child car seat owner's manual.



A child car seat owner's manual doesn't seem like a 'part' of a seat because it's not built into the seat. However, because the manual must always be referred to when using a child car seat, it is considered a primary part. It provides lots of information, but most important are the manufacturer's instructions on how to use the seat correctly.

If you can't locate the child seat owner's manual, they can be found on the manufacturer's website.

Some of the manufacturer's instructions for using the child car seat can also be found on the labels on the seat itself.

All child car seat owner's manuals will have the same basic information:

- Criteria for using the seat – weight, age, height
- Safety information specific to the seat
- How to register the seat to receive important recall or safety updates
- Using the seat in the different modes: rear facing, forward facing and as a booster
- Securing the child – adjusting the harness, crotch strap, chest clip
- Installing the seat – using the UAS, seat belt and tether strap
- Care and maintenance of the seat



## Activity

For each of the child car seat manufacturers below:

- Click on the link to the website
- Find the child car seat owner's manual (instructions below the link)
- Open the owner's manual and find the instructions for using the seat

### Graco

- a. Go to [gracobaby.ca](http://gracobaby.ca)
- b. Go to **Car seat manuals** under Useful Links at the bottom of the page.
- c. Choose any child car seat from the list.

### Safety 1st

- a. Go to [safety1st.com](http://safety1st.com)
- b. Go to **User Guide** under Downloads under the product image

## Key Points: Unit 7

- The child car seat owner's manual includes the manufacturer's instructions which must be followed when using a child car seat
- The child car seat owner's manual comes with each seat and can be downloaded from the manufacturer's website
- It's important to keep up to date with what's new related to child car seat

## UNIT 8

# Parts of a Child Car Seat: Installation

## Objectives

This unit covers standards under sections 2.5 and 2.6 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, students will be able to:

- Identify the primary parts of a child car seat used for installing a child car seat
- Describe the purpose of the following primary parts of a child car seat used to install the seat:
  - Infant seat base
  - Belt path
  - Seat belt lock-offs
  - Recline Mechanism
  - Recline Indicators and guides
  - UAS connectors
  - Anti-rebound mechanism
  - Tether strap

## Topics

- Infant seat base
- Belt paths
- Seat belt lock-offs
- Recline Mechanism
- Recline Indicators and guides
- UAS connectors
- Anti-rebound mechanism
- Tether strap



The primary parts of a child car seat you need to know for installing a child car seat includes:

- Infant seat base
- Belt path
- Seat belt lock
- UAS connectors
- Recline mechanism
- Anti-rebound mechanism
- Tether strap

Remember, you don't need to know how these parts work at this time, that is covered in the hands-on portion of this course. For now, become familiar with the name and purpose of the different parts.

## Infant seats

Most, but not all infant seats come with a detachable base. The base is attached to the vehicle seat and the infant seat carrier is attached to the base. Some manufacturer's sell extra bases so they can be installed in other vehicles where the infant seat might be used.

In addition, some of these infant seats can be used without the base, some cannot—you must check the child car seat manufacturer's instructions.

Also, some infant seats can be purchased and used without the base.



## Belt path

All child car seats will have one or two **belt paths** where the flexible UAS connector or seat belt is threaded through to secure the child car seat to the vehicle seat.



Forward-facing path

Rear-facing path

*If a seat is used both rear and forward-facing, there will be two belt paths: one used for rear facing and one used for forward facing*



*For some seats the belt paths are accessed by lifting a section of the seat's shell*



Belt path

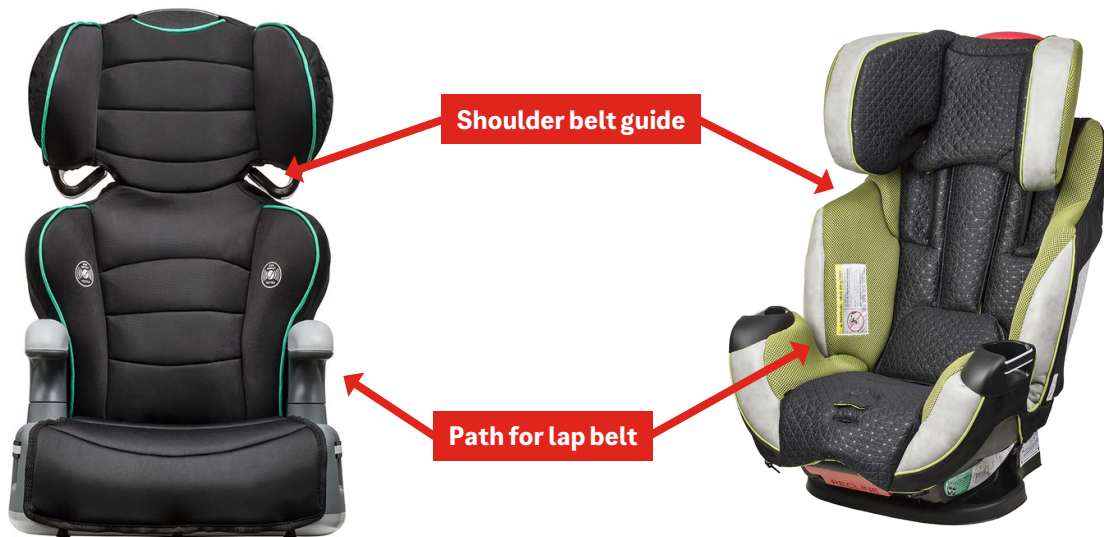
*For an infant seat used with the base, the belt path is in the base*



Belt path

*The belt path on an infant seat that is being used without the base is usually through guides on each side of the seat and the belt goes over the child car seat*

A booster seat will have one path or guide for the shoulder belt and one for the lap portion of the seat belt.



*A no-back booster comes with a shoulder belt positioner that can be used to correctly position the shoulder belt. Sometimes these have to be attached to the booster seat*

## Seat belt lock-off

When a seat belt is used for installing a child car seat, it must be locked. Some child car seats come with a mechanism for locking the seat belt, often called a lock-off. You must check the car seat owner's manual to determine if a child car seat has a lock-off and how to use it. Here's some examples of built-in locking mechanisms:



*This seat opens and the seat belt is threaded through. The seat belt is locked when the seat is closed*

## UAS connectors

All child car seats that attach to the vehicle seat will have Universal Anchorage System (UAS) connectors. These secure the seat to the vehicle by attaching to special anchors in the vehicle. There are two types of UAS connectors: flexible and rigid.



### Flexible UAS

A flexible UAS is made from webbing with UAS connectors attached to the end. Sometimes there is one long piece of webbing with a connector on each end. When used this webbing is threaded through a belt path.



And sometimes there is one UAS connector on each side of the child car seat. These are attached to the child car seat and do not go through a belt path.

There are different types of flexible UAS. All have some type of connector and way to adjust the tightness of the webbing.



## Rigid UAS

Rigid UAS connectors are attached directly to the child car seat. Some can only be moved straight out and others can rotate up and down to make it easier to attach to the UAS anchor.








## Recline mechanism

All child car seats used rear facing need to be reclined to some degree. A child seat reclined too far or not far enough will affect the functioning of the child car seat and potentially cause injuries. In addition, if a rear-facing seat used for a newborn is not reclined enough the baby's head can flop forward interfering with its ability to breathe effectively.

All infant, infant/child or infant/child/booster seats will have some type of mechanism to adjust the recline on the seat. The mechanism will differ between different manufacturers. Here are some examples:

Type	Reference
An infant base that uses a recline leg	
	

Type	Reference	
<b>An infant base with recline settings</b>		This base has settings that can be set before you attach the child car seat and some of these will factor in the angle of the seat to make getting the correct angle easier
<b>Seats that can be reclined after installation</b>		This seat can be moved back and forth after it is installed. Once the correct recline is achieved, the seat is locked in place
<b>Seats with a handle at the front</b>		
<b>An adjustable leg on an infant/child</b>	<p>When the leg is pulled out, the child car seat reclines</p> 	<p>When the leg is tucked under, the child car seat sits upright:</p> 

As always, you must refer to the child car seat manufacturer's instructions to see how to recline a rear-facing seat.

## Recline indicators and guides

Most rear-facing child car seats come with a recline level indicator or pre-set guides to help determine if the angle is correct.



*This recline indicator is like a level that shows when the seat is in the correct recline. Usually, they can only be used when the vehicle is on level ground*



*This seat has recline guides that provide the recline angle when the guide or line is level to the ground based on a child's weight and ability to sit upright*

This is a recline position guide on a seat that has multiple pre-set recline positions



## Anti-Rebound Mechanism

One of the things to understand with rear-facing seats is **rebound**. You've seen in previous videos how occupants first move toward the point of impact, e.g., forward, and then move back toward the back of the seat. This is rebound. The rebound movement can cause minor injuries for children in child seats as the seat moves back or, in the case of side impact, moves side to side.



Watch the short video [Frontal Impact Test](#) (0:30 min) to see this movement in slow motion with a child seat.

Because rebound can cause a child car seat to move in a way that can cause injury to the child, rear-facing seats for use in Canada must be built to limit the rebound. To meet this standard, manufacturers have a variety of anti-rebound mechanisms including:

- Anti-rebound bar
- Infant seat handle
- Load leg
- Design of the seat itself.

### Anti-rebound bar

Some anti-rebound bars are permanently attached to the child car seat and others are detachable and can be removed when the seat is turned forward facing.



*Rebound bar attached to the base of an infant seat*



*Removable rebound bar that must be attached for rear-facing*

## Infant seat handle

Some manufacturers have designed the infant seat's handle to limit the rebound when in the upright position. For these seats, the manufacturer's instructions say that the handle must be in an upright position when the child car seat is installed.



## Load leg

The load leg is attached to the base of a rear-facing child car seat and secured to the floor of the vehicle. For some seats the leg folds out from under the base of the seat and on some seats the load leg must be attached. Some seats have indicators to let you know the load leg is secured to the floor with the right amount of pressure.



Watch the video [Aton 2 Load Leg No Load Leg Comparison](#) (0:30 min) to see how a load leg works.

### Built-in anti-rebound design

Some seats build anti-rebound protection in the design of the sides of the seat.



Indicator installed



Anti-rebound built into the arms of the seat

## Tether strap

All child car seats used in the forward-facing mode (except built-in child seats) will have a tether strap. When attached, the tether strap limits the forward movement of the top of the child car seat in a crash. This is to comply with Transport Canada's regulation under CMVSS 210.1 that in a collision a child car seat must prevent a child's head from moving forward more than 720 mm (28 inches).



Though rare, there are also some child car seats that require a tether strap for the rear facing mode.

The tether strap is attached to the top of the child car seat and attaches to a designated tether anchor in the vehicle. You will learn how to use the tether strap in the hands-on portion of this course.

## Swivel Seats

Some child car seats swivel or rotate to make it easier to get a child in and out of their car seat. Though convenient, there are some specific things to be aware of related to these seats:

- They are bigger and heavier than other types of car seats
- Rotating in the rear-facing position will take up a lot of space because of the angle that needs to be installed – it's very important to check if the car seat fits while installed in the rear-facing mode
- These seats have a removable base which must be installed first before the shell of the seat.



## Activity

If you have access to a child car seat:

- Locate where the child seat owner's manual is stored.
- On the seat, locate the:
  - Base if it's an infant seat
  - Belt path
  - UAS connectors
  - If rear-facing:
    - Recline mechanism
    - Recline indicator or guide
    - See if it has an anti-rebound bar or load leg
  - The tether strap

## Key Points: Unit 8

To review, here's what is important to remember about the parts of a child car seat:

- The essential parts of a child seat needed for installing a child car seat:
  - Infant seat base
  - Belt path(s)
  - UAS connectors
  - Recline mechanism
  - Recline indicators and guides
  - Anti-Rebound bar
  - Load leg
  - Infant seat handle
  - Tether strap
- The child car seat owner's manual is a key component needed to use a child car seat
- It's important to keep up to date with what's new related to child car seats

## UNIT 9

# Parts of a Child Car Seat: Securing

## Objectives

This unit covers standards under sections 2.5 and 2.6 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, students will be able to:

- Explain the purpose and importance of the child car seat owner's manual
- Identify the primary parts of a child car seat used for using a child car seat
- Explain the importance, as a BCAA CPS Educator, of keeping up to date on updates to the primary parts of child car seats
- Describe the purpose of the following primary parts of a child car seat used to install the seat:
  - Harness
  - Chest clip
  - Buckle

## Topics

- Child car seat owner's manual
- Harness, chest clip and buckle
- Additional features



The main parts used for securing a child to the child car seat are:

- Harness, chest clip and buckle
- Splitter plate
- Harness height adjuster
- Harness tightness adjuster

## Harness, Chest Clip and Buckle

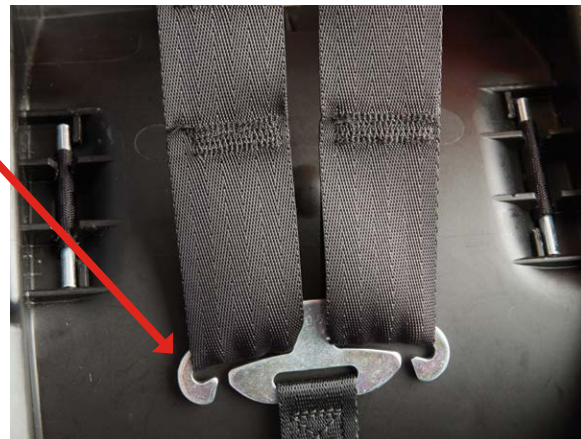
All child car seats, except booster seats will have a **harness** with a **chest clip** that secures to a **buckle** to hold the child into the child car seat:



## Splitter plate

On most child car seats the harness and buckle strap attaches to a splitter plate at the back of the child car seat. Sometimes you have to remove a plastic cover to access the splitter plate.

On some seats you need to undo the harness from the splitter plate to adjust the harness level. You will learn how to do this in the hands-on session of this course.

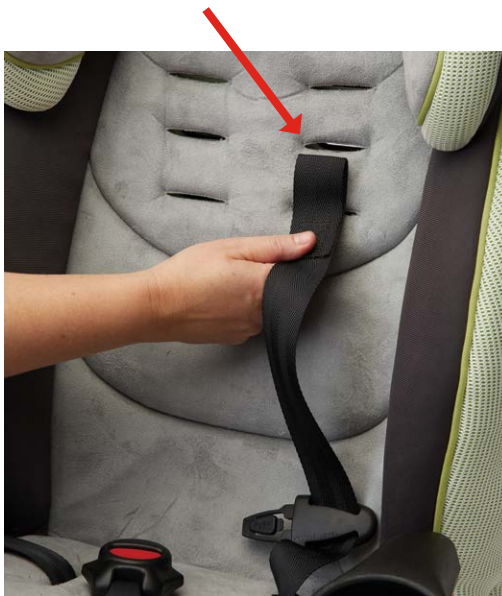


## Harness height adjuster

All child car seats with a harness will have some way to **adjust the shoulder height**. For example, some could be adjusted using levers or a handle on the seat like this:



On some seats the harness must be adjusted manually by disconnecting the harness and threading it through the correct slot on the back of the seat.



On some seats the harness is one long piece of webbing and on other seats they are two separate pieces, one on each side of the child car seat.



One long piece of webbing



Two separate pieces of webbing

You will get an opportunity to work with different types of harness adjusters including manual adjustments during the hands-on portion of this course.

## Harness tightness adjuster

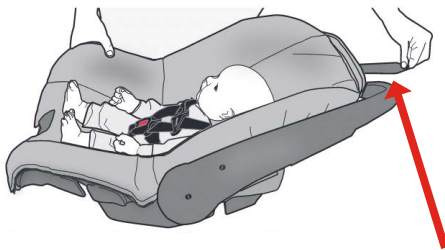
All child car seats with a harness will have some way to adjust how tight the harness is.

For many seats there is a strap below the buckle system to tighten and some type of release lever to loosen:

For some there is a tension tightening knob:



And for some seats, the harness tightness is adjusted at the back of the seat:



*Harness strap at the back of the seat to tighten the harness*



*Harness adjuster to loosen the harness at the back of the seat*



*Harness at the back used to loosen and tighten*

## Additional Features

As mentioned previously, in addition to the primary parts used to install a child car seat and secure a child, there are additional features added to child car seats. Three common ones that you should be aware of are inserts, airbags and sensors.

### Inserts

Some child car seats come with head and body support inserts that can be used for infants and removed as the child grows.



*Manufacturers have weight and height requirements for using and removing these inserts*

### Airbags

There are some child car seats that come with airbags built into the side of the seat at the top to provide further protection to the child's head. Those seats will have a symbol at the location of the airbag.



## Sensors

Some child car seats come with a sensor system built in to the chest clip that alert the caregiver in certain situations including:

- Child unclips the chest clip
- Back seating area has become too hot
- Child has been in the child seat over a certain amount of time (i.e. more than 2 hours)
- The child has been left in the vehicle when parked.

The chest clip sensors are used together with an app on a mobile device.



## Other features

There are other features that come with child car seats, and more are periodically being added. It's important to read the manufacturer's instructions to determine information about the features on a specific child car seat. For example, many seats come with cup holders and for some, they cannot be removed in the rear facing mode.

It's important to keep up to date with what's available and when you come across something new, look it up in the manufacturer's instructions.

## Activity

If you have access to a child car seat:

- Locate where the child seat owner's manual is stored.
- On the seat, locate the:
  - Harness and buckle
  - Splitter plate
  - Harness height adjuster
  - Harness tightness adjuster

*Note: If you don't have access to a seat, you will get an opportunity to familiarize yourself with the location of these parts in the hands-on portion of this course*

## Key Points: Unit 9

To review, here's what is important to remember about the parts of a child car seat for securing a child:

- The location and purpose of the following essential parts of a child seat needed for using a child car seat
  - Harness, chest clip and buckle
  - Splitter plate
  - Harness height adjuster
  - Harness tightness adjuster
- It's important to keep up to date with what's available and when you come across something new, look it up in the manufacturer's instructions

## UNIT 10

# Getting to Know the Vehicle

## Objectives

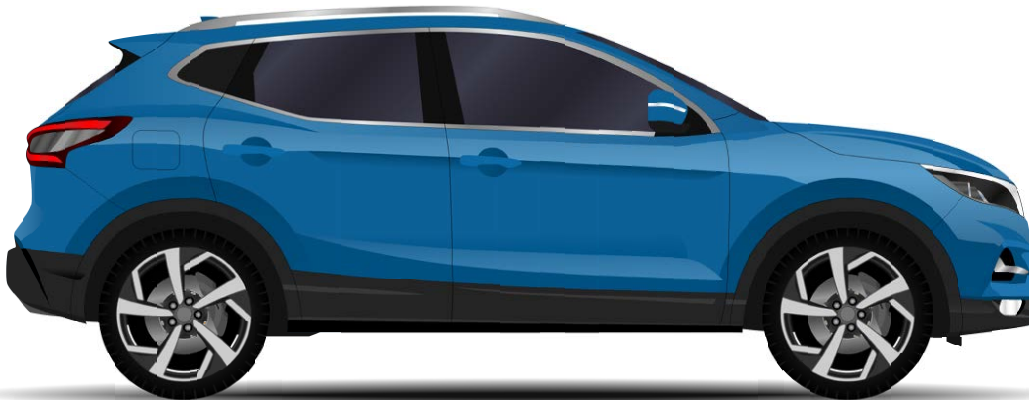
This unit covers standards under sections 2.6 and 2.7 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, students will be able to:

- Explain the importance of the vehicle owner's manual for securing a child passenger
- Identify the following parts of a vehicle:
  - Airbags
  - Tether anchors
  - UAS anchors
  - Seat belts
- Identify the types of vehicle seats that cannot be used with a child car seat

## Topics

- Vehicle owner's manual
- Components of a vehicle important for using child car seats
  - Seat belts
  - Latch plates
  - Airbags
  - Tether anchors



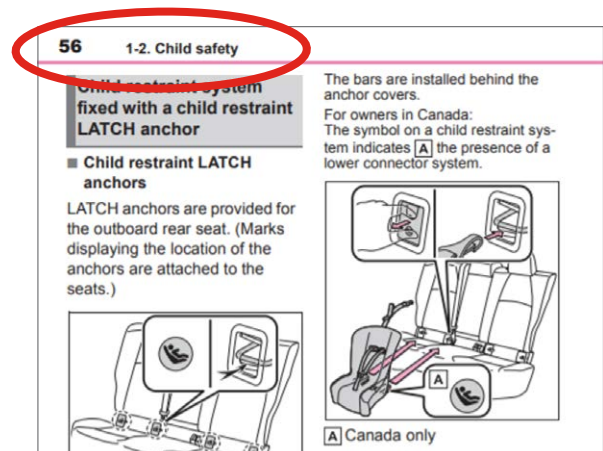
Vehicles vary considerably, particularly in their design. However, there are some common components that are important for you to know for installing child car seats or securing child occupants. What components a vehicle has and where they are located can be found in the vehicle owner's manual.

## Vehicle owner's manual

The vehicle owner's manual provides information about installing a child seat correctly into the specific vehicle including:

- Which vehicle seats or seating positions you can use
- Where to find the universal anchorage system and tether anchors
- Where airbags are located

You can usually find the child car seat section in the index under 'Child Safety'.



## Activity

### Review of vehicle owner's manuals

For each of the vehicle manufacturers below:

- Click on the link
- Enter the vehicle type and year listed below the link
- Open the vehicle owner's manual
- Find the section on child safety

#### Toyota

- Go to [toyota.ca](https://toyota.ca)
- From the dropdown menus choose a 2021 Corolla.
- Click on the owner's manual link to open.

#### Honda

- Go to [honda.ca](https://honda.ca)
- From the dropdown menu choose a 2021 Pilot.
- Click on the Download Manual link to open the manual.

#### Note

The links to these manuals can be found in the Community under CPS Educator II Course – Student

# Components of a vehicle

The components of a vehicle that you should be familiar with are:

- Seat belts
- Airbags
- Tether anchors
- UAS anchors
- Vehicle seat

## Seat belts

The seat belt is a very important part of the vehicle that needs to be assessed every time a child car seat is installed. We've already discussed seat belts so you will remember that there are two main types: lap/shoulder and lap only. And remember that some vehicles have inflatable seat belts. There are some child car seats that cannot be used with inflatable seat belts.

Other than some older vehicles, all vehicles will have lap/shoulder belts available in all seating positions. Sometimes in the rear middle seat, the seat belt can be stored in the roof or on the parcel shelf behind the seat when not being used.

When wanting to use the seat belt it must be pulled down or out. The webbing will have a small metal latch that must be inserted into a reciprocal located on the same side of the vehicle seat that the shoulder belt was pulled down from.



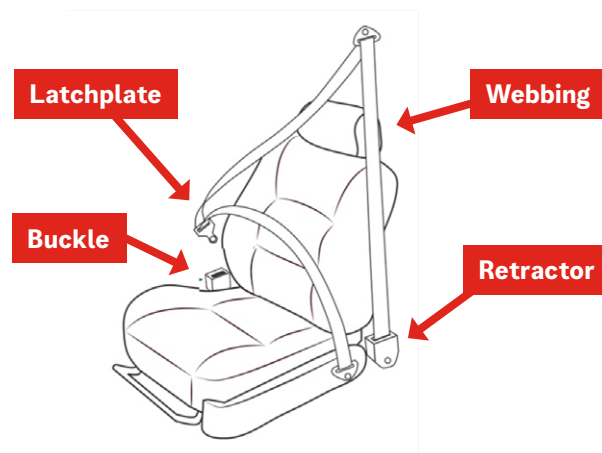
*Seat belt stored in roof of vehicle*



Disconnecting the seat belt requires a key to be inserted into a slot where the latch is attached:



The parts of a seat belt were discussed in Unit 2. The parts you will need to be familiar with when installing a child car seat are the **webbing**, **retractor**, **buckle** and **latch plate**.



As you know the latch plate is the metal piece that goes into the buckle to secure the seat belt. There are different types of latch plates, some slide freely, some have a locking mechanism, and some are fixed onto the webbing.

To use child car seats, you will need to differentiate between locking latch plates and non-locking latch plates. In the skills section of the course, you will get an opportunity to look closer at both these types of latch plates but for now, just become familiar with the basic differences between the two.





## Locking latch plates

A locking latch plate will have some type of locking mechanism attached to the metal tongue. These are found on most lap only seat belts in older vehicles and in the center rear seating positions of some newer vehicles. Some will have a locking bar on the back and some will have a moving metal or plastic piece. Here are some examples including one that can be switched to a locking mode:

Type	Example
<b>Locking latch plate</b>	 <p>Locking bar on back</p>
<b>Cinching latch plate</b>	 <p>This piece moves up and down</p>
<b>Switchable latch plate</b>	 <p>This is a switch to make it into a locking latch plate for installing a child car seat</p>

## Non-locking latch plates

The most common type of latch plate is a non-locking latch plate.

Type	Example
<p><b>Sliding latch plate</b></p> <p>These latch plates slide freely on the webbing. The one on the right can be confused with the cinching latch plate above, but you can see that there are no moving parts and nothing to stop it from moving freely on the webbing.</p>	
<p><b>Dynamic latch plate</b></p> <p>These latch plates look similar to a locking latch plate, but it is only on a lap/shoulder seat belt and it only locks during a crash. These cannot be put in a locking mode manually.</p>	
<p><b>Latch plate on an inflatable seat belt</b></p> <p>These latch plates look very different and are only found on inflatable seat belts.</p>	
<p><b>Sewn-on latch plate</b></p> <p>These latch plates are found on both lap/shoulder and lap only belts in older vehicles.</p>	

It is also important to know that all seat belts, except those in older vehicles, lock automatically in a crash. This holds the occupant tight in the appropriate position to prevent ejection and to take advantage of the safety features of a vehicle. When using a child car seat, the seat belt must be manually locked to keep the child car seat in position.

You will learn how to determine seat belt locking in the skills section and hands-on session but right now it's just important to know that a seat belt needs to be locked when using a child car seat. This keeps the child car seat, and hence the child, in the best position for preventing injury. It allows the child car seat to do its job most effectively.

## Airbags

Airbags were discussed in Unit 2 and 3 so you already know that a vehicle can have airbags in the front and rear seating positions. Remember, it is important to know where the airbags are located to help determine the best place to seat a child passenger. The vehicle owner's manual will have information on the location of the airbags and any safety information related to compatibility with child car seats.

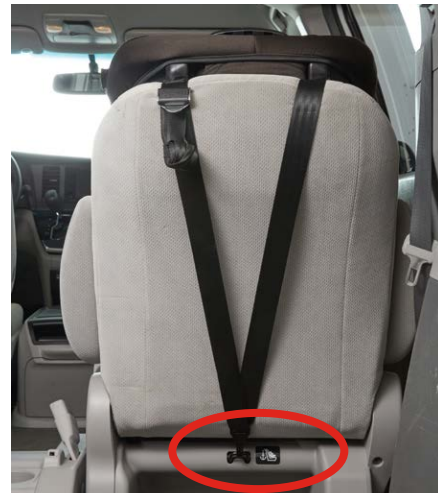
## Tether anchors

As discussed in Unit 5, it is the law in BC that all seats with a harness that are used in the forward-facing mode, be secured with a top tether strap. The tether strap attaches to a designated tether anchor. Most vehicles have ready-to-use tether anchors. The vehicle owner's manual will provide information about the location of tether anchors.

All vehicles will have this tether anchor symbol to indicate where the tether anchor is located



For some pickup trucks, the location of the tether is not obvious. Watch the video [Top tether anchor confusion in pickup trucks](#) (0:55 min) to see what a tether in a pickup truck might look like.



*Tether is attached to an anchor located under the seat in a van*



*Tether is attached to an anchor behind the rear seat in a sedan*

Some older vehicles that do not have built-in tether anchors must have them installed before using a forward-facing child car seat. This is becoming more difficult as time goes on. The retrofit kits are no longer available in most, if not all, automotive stores. You can recommend owners of vehicles without tether anchors to contact the vehicle manufacturer to determine if a tether anchor can be installed in their vehicle.

Remember, it is always best practice to refer to the vehicle owner's manual to determine the correct tether anchor location.

## UAS anchors

As discussed in Unit 5, all child car seats come with Universal Anchorage System (UAS) connectors. The connectors attach to UAS anchors situated in the space where the back of the vehicle seat meets the bottom section, also referred to as the 'seat bight'.



*Note: The universal term for UAS is ISOFIX and in the United States they are called lower LATCH so you might see these terms in child seat manufacturer's instructions or vehicle owner's manuals.*

▶ Watch the Children's Hospital of Philadelphia's video [Using LATCH \(UAS\) to Install Car Seats](#) (4:04 min) to see how the UAS system works. You will learn more about using UAS to install a seat in Unit 16 and in the hands-on portion of the course.

Though you will learn more about the UAS, there are a few more things you should be aware of:

- Not all seating positions have UAS anchors
- Both child car seats and vehicle seats will have weight limits for using the UAS
- You must refer to both the child seat and vehicle owner's manuals before using the UAS.

## The vehicle seat

Obviously, you are familiar with what a vehicle seat is, but for using child car seats, it's important to look closer at how the seat is designed: not all child car seats fit correctly on the vehicle seat.

This is particularly important for the middle rear seating position. Some vehicle seats are designed too narrow for a child car seat to fit. And some have a section that folds down from the back of the middle seat. A child car seat can't always be put in seats with this feature.



And in some vehicles, it can be difficult to get the child car seat to sit flat on the vehicle seat in the middle, making it difficult or impossible to get a secure, tight fit.

Vehicle seats can also differ in the direction they face. Only vehicle seats that face forward can be used for child car seats. Side facing or rear-facing vehicle seats cannot be used.

And another type of vehicle seat is the 'jump' seat. This is a seat that folds down. Often, they are facing sideways or rearwards and, in that case, as just mentioned, those cannot be used for a child car seat. But there are some that face forward. Sometimes these are too narrow to accommodate a child car seat. These seats should not be used without consulting the vehicle owner's manual.

**Remember, it is important to always check the vehicle owner's manual to determine which seating positions can be used for installing a child car seat.**

## Activity

If you have access to a vehicle (and the owner's manual), find the following:

- What type of seat belts are in each seating position: lap/shoulder, lap only
- Location of the airbags
- If there are inflatable seat belts
- If there are seating positions where a child car seat cannot be used
- Tether anchors
- UAS anchors
- The design of the vehicle seat

*Note: If you don't have a vehicle available, find a vehicle manual online to find this information.*

### Toyota

- a. Go to [toyota.ca](https://toyota.ca)
- b. From the dropdown menus choose a 2021 Corolla.
- c. Click on the owner's manual link to open.

### Honda

- a. Go to [honda.ca](https://honda.ca)
- b. From the dropdown menu choose a 2021 Pilot.
- c. Click on the Download Manual link to open the manual

## Key Points: Unit 10

To review, here's what is important to remember about a vehicle for working in child passenger safety:

- You must always refer to the vehicle owner's manual before installing a child car seat or securing a child passenger
- The location and purpose of the following components:
  - Airbags
  - Tether anchors
  - UAS anchors
  - Seat belts
- Middle rear seating positions can be incompatible with a child car seat:
  - Seat is too narrow for the child car seat
  - The child car seat can't be installed flat
  - The vehicle owner's manual doesn't allow it
- The seat belt is a very important part of the vehicle that needs to be assessed every time a child car seat is installed
- Only vehicle seats that face forward can be used for child car seats. Side facing or rear-facing vehicle seats cannot be used

## SECTION C

# CPS Education

This section provides the information that supports you to educate others about CPS. Work through this section, Units 11 and 12:

- ✓ Complete the unit activities
- ✓ Determine what modes of education you will use most often
- ✓ Review the key points



## UNIT 11

# Educating Others

## Objectives

This unit covers standards under sections, 2.6, 2.7 and 3.0 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge and skills objectives:

### Knowledge

On successful completion of this unit, learners will be able to:

- Describe adult learning principles
- List and describe different modes of delivering child passenger safety education
- Describe how to plan for conducting CPS education
- State how to access support for planning education in their community

### Skills

On successful completion of the hands-on portion of the course, the learners will be able to:

- Conduct one or more of the following education sessions
  - Child Seat Clinic
  - Information Session
  - Hands-On Workshop

## Topics

- Adult learning principles
- Delivery modes
- Planning for CPS Education



**Educating others about child passenger safety is the foundation of the role of a CPS Educator. And the goal of all education is to get the correct information into the hands of the user.**

BCAA's CPS Program takes a learner centered perspective that focuses on providing the accurate and appropriate information needed to keep child occupants safe. This can be accomplished through many different delivery modes, ranging from information in the media or an informal conversation with one person, to an organized presentation to many.

As CPS education is primarily delivered to adults, it is important to have some understanding about how adults learn. There are many variations of adult learning principles. The following five will provide you with a good foundation for working with adult participants:

<p><b>Adults are self-directed and autonomous</b></p>	<p>When possible, provide a participant-centered approach that involves them in the process and gives them the opportunity to direct what they need to know.</p> <p>Ask questions and let them ask questions and give their own stories and anecdotes.</p> <p><b>Remember:</b> Don't teach... facilitate.</p>
<p><b>Adults learn best through direct experience</b></p>	<p>Learning should involve active and practical participation.</p> <p>When possible, support 'learning by doing' by letting the participants install seats and problem solve — let them make and correct mistakes.</p>
<p><b>Adults learn best when it's directed toward a goal</b></p>	<p>Adult learners must see very clearly how the learning is important to them personally and how it applies to their lives.</p> <p>They need to know the benefits, values, and purposes of the learning to engage in it. They need to know:</p> <ul style="list-style-type: none"> <li>• How learning will be conducted</li> <li>• What learning will happen</li> <li>• Why the learning is important</li> </ul> <p>Provide clear learning goals and objectives so participants understand the relevance before the learning begins.</p>

**Content needs to be relevant and practical**

Adult participants come with a greater volume, and different quality, of experience than younger ones.

Adult participants need to be able to relate to the learning from their own experiences to aid their learning. Experiential techniques that are effective include group discussion, simulation, problem-solving and case scenarios. This course uses all these techniques. Key things to support this includes:

- Letting the participant solve the problems – don't provide them with the answers to questions, they can find themselves.
- Let them make mistakes. Making mistakes is a powerful learning tool for any age.
- Use case scenarios and examples the participants can relate to. Think about how they will be using this learning and adjust your content to them. For example, a child-care worker's experience can be very different from that of a parent.

Use real-life scenarios and ones from your own experience.

**Adult learners need feedback**

Effective feedback is critical to adult learning.

Provide opportunities for feedback by asking the participants questions when appropriate. When possible, letting the participants use their own child car seat gives opportunity for feedback through their own mistakes and from your supportive feedback.

Now that we've reviewed adult learning principles, let's look at the different modes you can use to deliver CPS Education and how to plan for a session.

## Delivery modes

Through the many years that the BCAA CPS Program has been teaching others, we have learned there are key delivery options that can make the most impact to the widest audience. These include:

- Public awareness
- Information sessions
- Child Seat Clinics
- Hands-on workshops

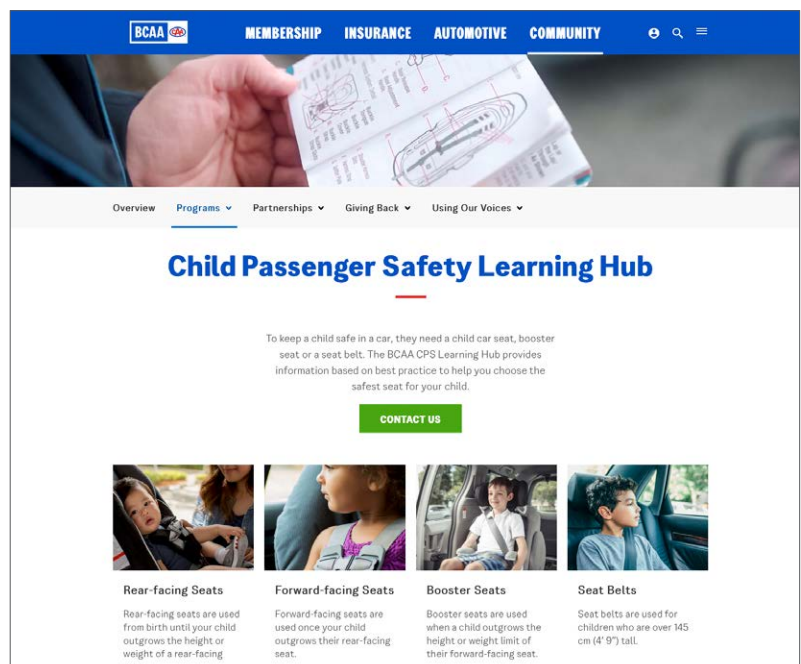
## Public awareness

Public awareness activities include using different media and avenues to provide information to a large number of people. From the years of providing educational services, the most effective activities are:

- Online
- Printed material
- Community health and safety fairs
- Media

## Online

Providing information online includes using content like text, video and audio on a website, streaming service or social media application. An example is the BCAA website that provides information and how-to videos to the public on their [Child Car Seat Safety page](#).

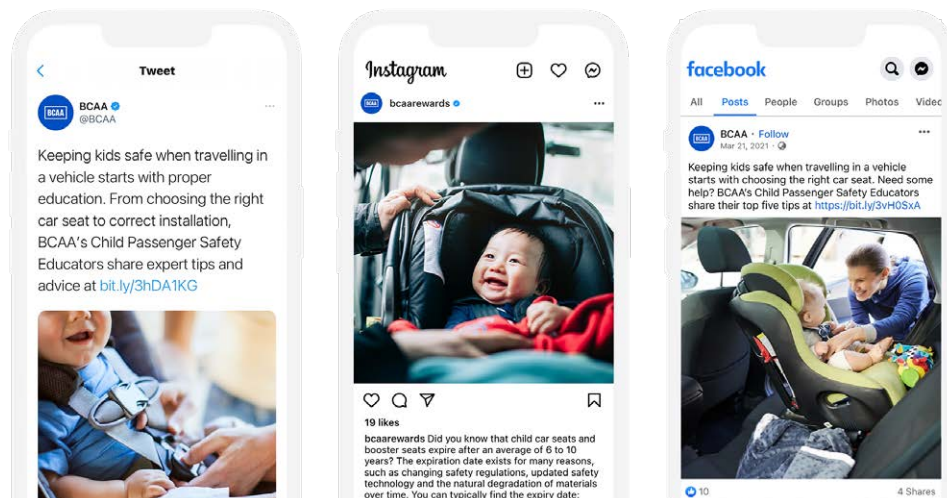
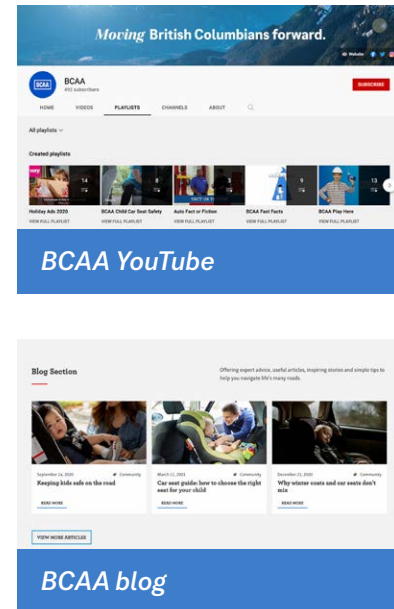


BCAA also has a [YouTube channel](#) that includes how-to videos on child passenger safety as well as other road safety topics.

Creating a regular blog on your website is another way to add value to your online presence while educating others. The content used in your blog can be reworked to use in social media posts. BCAA has a [blog](#) on several safety issues, including child car seats.

If you have an online presence and want to include child passenger safety information you can link to these resources or use the content in the various BCAA resources.

**Social media** like YouTube, Instagram, Twitter, Facebook, TikTok and Reddit can be a great way to connect to parents and caregivers. You can provide useful links, post updated information, answer questions, post videos, create a community or group for your location or organization. For example, in addition to their YouTube channel, BCAA has a presence on [Twitter](#), [Instagram](#) and [Facebook](#):



*BCAA Twitter, Instagram, and Facebook*

If you create an account on these platforms, you can follow these and other organizations to increase your reach. If there's something of interest to your audience, you can provide links or make comments on these accounts which will in turn bring that information to your audience.

## Print

Though printed material is not as common as it used to be, it is still a good way to disseminate information especially with in-person contact. Materials can be handed out at CPS education sessions, information booths, malls, and health care clinics, or they can be available for people to pick up.

BCAA has brochures, fact sheets and a poster you can use. These are available to download on the Educator Resource section of the [BCAA CPS Educator Community](#). Fact sheets are found in the appropriate section based on age. Brochures and posters can be found under Poster & Brochure.

You can use the content in these resources for your own education purposes, e.g. writing articles, posts or blogs. The poster can be used to increase awareness and to advertise your education sessions.

## Community health and safety fairs

A good way to reach out to professionals and the public is community health and safety fairs or other local events. You can have a booth or offer to be a presenter. You can provide information using the BCAA CPS fact sheets and brochure, have seats available for demonstrations, and make connections for future education sessions.

## Media

Though not an option everywhere, using local and provincial media e.g. newspapers, television, etc. is another way to reach a wide audience.



## Information Sessions

Information Sessions are about one to two hours and can be provided in-person or virtually. They provide information on:

- Best practices for choosing and using child car seats
- B.C. law
- Hazards

These sessions should focus on the needs of the audience. If it is a prenatal group, limit the discussion to rear-facing seats only. If the audience is more diverse, you will want to cover both rear and forward-facing seats. Finding out the needs of the audience ahead of time will help you choose the best approach and what content to cover. These sessions do not include practice installing child seats in vehicles.



BCAA has compiled resources including facilitator notes and slide presentations for various audiences that you can use to conduct information sessions. These can be found in the Educator Resource section of the [BCAA CPS Educator Community](#).

## Hands-On Workshop

Hands-on Workshops are longer (up to four hours) and are group sessions for people who transport children as part of their work. These workshops are conducted in a classroom setting and provide practice using child seats in vehicles. These workshops cover:

- Types of child car seats
- B.C. law
- Best practices
- How to choose and use a child car seat
- Practice using child car seats

For these sessions you need child car seats and vehicles to work with. It is best for the participants to use the child car seats and vehicles they will be using to transport children. If that is not possible you will have to ensure these are available.



BCAA has facilitator notes that you can use to conduct a Hands-On Workshop. These can be found in the Educator Resource section of the [BCAA CPS Educator Community](#).

## Child Seat Clinic

A Child Seat Clinic is a session where the parent or caregiver brings in their vehicle and child car seat(s), to learn how to use it with the guidance of the CPS Educator.

After many years of teaching others to use child car seats, the BCAA CPS Program has found that the most effective approach for these sessions is to have participants install their own child car seat into their vehicle and secure their child, with your guidance rather than having you check and make corrections.



Child Seat Clinics can be conducted anywhere there is room to conduct it safely e.g. parking lot. Some common locations are fire halls and community centres. Some organizations like fire departments have regular clinic days once a month, while others offer drop-in service only, and some do both. You can set up your clinics as booked appointments so that you can plan your workload, or they can be done on a first come, first served basis.

Usually, Child Seat Clinics are done on a one-to-one basis with the CPS Educator, but they can also be done with small groups of participants.

Instructions on how to set up and conduct a Child Seat Clinic can be found in the Educator Resource section of the [BCAA CPS Educator Community](#).

# Planning CPS Education

The goal of child passenger safety education is to get accurate and appropriate information into the hands of caregivers, particularly parents, ultimately increasing the safety of children in motor vehicles. To be effective, education needs to be well planned. This includes identifying the target audience and choosing an appropriate delivery mode for that audience.

## Who is the Target Audience?

The most important information for any education plan is to know who the audience will be. When planning community-based education, find out about the community:

- Who is at the greatest risk?
- Are people requesting information or are you going to them?
- Who are they?
- How much do they need to know?

In communities that are diverse, it is important to identify the different groups, cultures, and ethnicities. It helps to understand the uniqueness of these groups:

- What languages do people speak, read, or understand?
- Does the community have any literacy issues?
- Do they have financial or social challenges?
- What is the cultural background of the group?
- Who provides care to the children?
- Who makes the decisions about children?
- How can the target audience be accessed?
- How does the target audience get information?
- Are there any customs you should know about or follow when working with a specific culture?

Consider getting assistance from influential or well-respected people within any sub-groups in the population. They can help overcome potential barriers such as language and access. There are organizations that have resources to help in both specific cultures and culture diverse communities. Here are a few to start:

#### [DIVERSEcity Community Resources Society](#)

Services for new Canadians and diverse communities in Surrey, Langley, Delta and White Rock

#### [IndigenEYEZ](#)

Provide a 2-day workshop for anyone wanting to work with indigenous communities

#### [Indigenous Corporate Training Inc](#)

Have training and free resources to help you work effectively with Indigenous Peoples

#### [S.U.C.C.E.S.S](#)

Provide services to a diverse group of people with a focus on new Canadians

#### [MOSAIC BC](#)

Provides services to a diverse group with a focus on new Canadians throughout BC

If public education is a new role, then it helps to start out small. Do not try to tackle a whole diverse community all at once. Pick one target group and work from there. The initial group could be just a gathering of friends who have children. It could also be an organized group of parents at your local community centre.

Also, it is recommended to practice before doing a presentation for the first time at an information session or hands-on workshop. This can help things run smoother and for you to gain confidence.

The BCAA Child Passenger Safety Program can assist with identifying target audiences and getting started. They have worked with communities all over British Columbia and have the resources and expertise to help you get started.

## **Need Support?**

Contact the BCAA Child Passenger Safety Program for questions or assistance in providing CPS education by calling 1.877.247.5551 or emailing to [communityimpact@bcaa.com](mailto:communityimpact@bcaa.com).

## Activity

In the Educator Resource section of the [BCAA CPS Educator Community](#), find the following:

- The virtual presentation and facilitator notes for the following information sessions
  - General
  - Prenatal
  - Toddler
- The Guide to Virtual Presentations under CPS Virtual Sessions
- The in-person information session facilitator notes
- Zoom, Microsoft Teams and Skype User Guides
- Child Seat Clinic Checklist
- The following posters and brochure:
  - Choosing the Right Child Car Seat – in various languages
  - Are You Using the Right Car Seat for Your Child?
- The following fact sheets:
  - Birth to One Year
  - Over One Year
  - Under Nine Years Old
  - Nine Years and Older
  - Buying a Used Child Car Seat
  - Getting Your Child to Use a Booster Seat

These resources are available for you to download and print off to use for educational purposes.

## Key Points: Unit 11

To review, here's what is important to remember about providing CPS education:

- The CPS Educator's role is to get the correct information into the hands of the user
- Understand and follow the five adult learning principles
- Know your audience and plan ahead
- If you are new, practice ahead of time
- BCAA has resources on the BCAA Educator Community including presentations, facilitator notes, fact sheets, brochures and posters

## UNIT 12

# CPS Educator Support

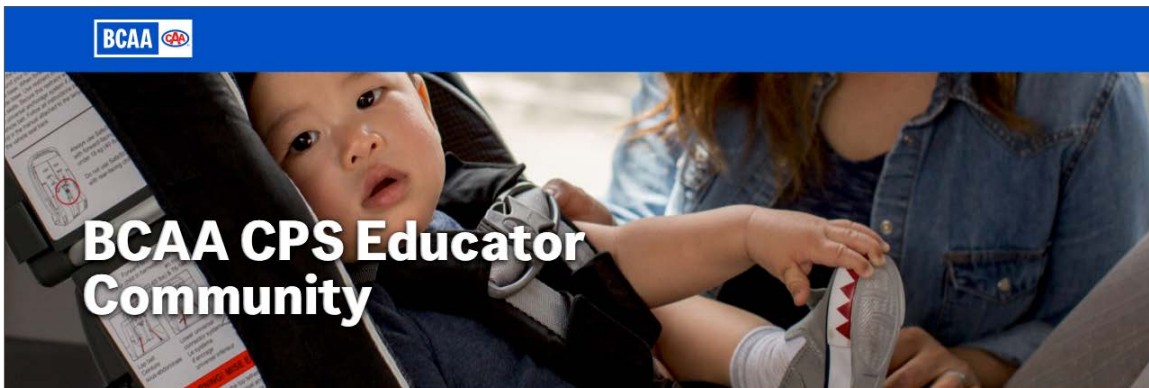
## Objectives

On successful completion of this unit you will be able to:

- Describe and access the support available through the BCAA CPS Program
- Access and utilize the tools and resources available in the BCAA CPS Educator Community

## Topics

- BCAA CPS Phone Line and email
- The BCAA CPS Educator Community



**BCAA CPS Educator Community**

**Educator & student login**

Log in to access the CPS Educator II Exam, report your activities, and complete the BCAA CPS Educator Competency Review.

Email address:

[Request access](#)

**Student Registration**

Are you participating in a BCAA CPS Educator II Course? [Register](#) as a student to complete the self-study activities and online exam.

**Latest info for educators**

**Keeping kids safe on the road**

Jan 8, 2021

It starts with proper education. BCAA Child Passenger Safety Educators recommend keeping it simple and focusing on getting the basics right. Here's what's key to ensuring your kids are safe when travelling in a car.

Become well-educated on child passenger safety. Understand how to choose the correct seat for your child's age and size.

Choose a child car seat that meets age, weight and height

[READ MORE](#)

[READ ALL ARTICLES](#)

[TRANSPORT CANADA RECALLS](#)

While working as a CPS Educator, there might be times that you need to refer to other resources for support. You might have questions about a specific seat or vehicle or you might need help to solve a situation. There are resources you can access including the BCAA CPS program and outside resources.

## The BCAA CPS Program

The BCAA CPS Program is committed to supporting your CPS work. We have a phone service, email and online resource dedicated to CPS.

### The BCAA CPS Phone Line and email

Whether you're starting out as a CPS Educator or you have been working in the field for a while, there will probably be a time that you need help to either solve a seat installation or organize an education session. BCAA is here to provide that support.

The BCAA CPS Program has the **Child Passenger Safety Info Line, 1.877.247.5551**, that you can call to speak with an experienced CPS Educator. They can help answer your questions, direct you to an appropriate resource or help you organize an education session.

In addition, you can contact the BCAA CPS program through our email at [communityimpact@bcaa.com](mailto:communityimpact@bcaa.com).

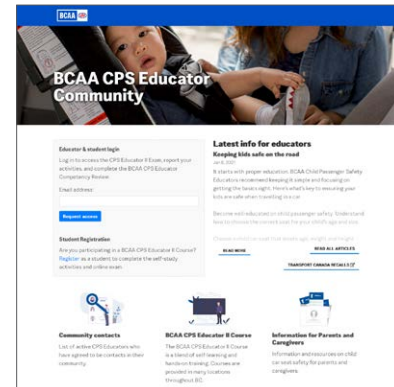
## The BCAA CPS Educator Community

As discussed in the Introduction, the BCAA CPS Educator Community (The Community) is a portal for all certified CPS Educators and registered students of the CPS Educator II Course.

It provides access to online resources to support working in child passenger safety.

The Community includes:

- Access to resources including fact sheets, slide presentations, articles, and relevant links
- The final exam for the CPS Educator II Course
- Online activity reports
- Competency review
- Community contact list
- Updates and important news



As a CPS Educator II student, you have been provided with a student account which allows you access to most of these features including the final exam, all the resources, updates and news and the community contact list. On successful completion of the course, you will be updated to a CPS Educator account which provides you with full access so you can complete activity reports and the competency review.

If you have any questions or need support to access the Community, contact the BCAA CPS Program:

**Email** [communityimpact@bcaa.com](mailto:communityimpact@bcaa.com)

**Phone** 1.877.247.5551

## Other resources

Other sources for support as you work as a CPS Educator include:

- Child car seat manufacturers for help with a specific seat
- Vehicle manufacturers for help about a specific vehicle
- Places to refer caregivers for further assistance with special transportation needs.

A list of contact information including phone, email and online resources is available in the appendix of this manual and on the [Community](#).

## SECTION D

# Hands-On Skills

This section provides the practical application of the principles of child passenger safety in motor vehicles.

Before attending the hands-on component of this course, pre-read Units 13-18 and watch the videos to get an overview of the skills involved in securing the child and installing the child car seats in vehicles. The hands-on session will provide you with the opportunity to use the skills outlined in these units.



## UNIT 13

# Use the Seat Belt System

## Objectives

This unit covers standards under sections, 2.6, 2.7 and 3.0 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge and skills objectives:

### Knowledge

On successful completion of this unit, students will be able to:

- Explain what happens when using a lap-only seat belt
- Describe the injuries that can result from using a lap-only seat belt
- Define an aftermarket products and explain the potential danger in using them

### Skills

- Demonstrate securing a child correctly in a lap/shoulder seat belt system

## Topics

- Correct use of a lap/shoulder belt
- Dangers of a lap-only seat belt
- Aftermarket products for seat belts

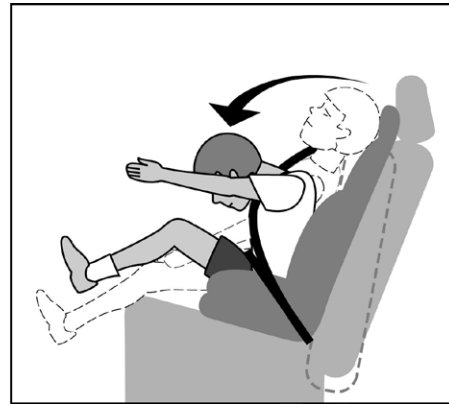
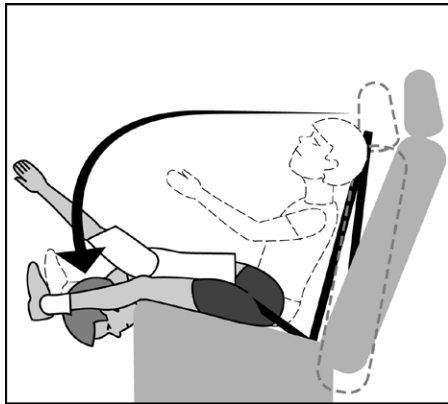


As discussed previously, there are two main types of seat belt systems: lap-only and lap/shoulder belt. The lap/shoulder belt provides the best protection in a crash and therefore is the preferred system.



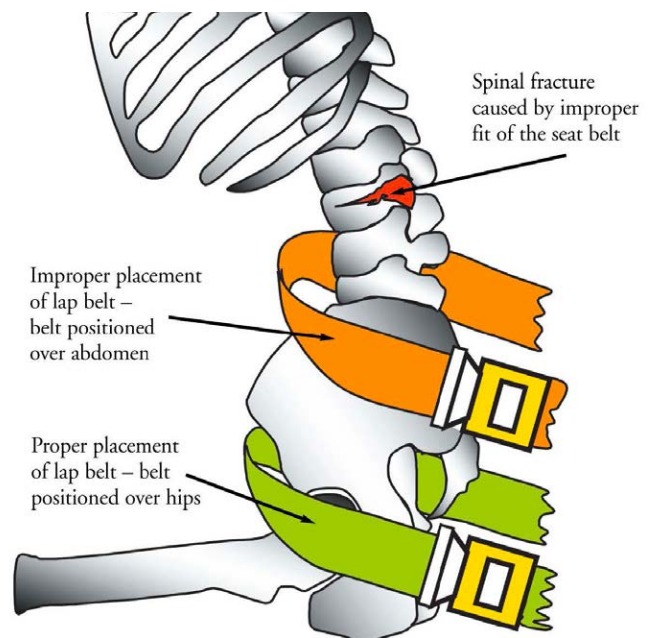
Watch the Children's Hospital of Philadelphia's video [Simulation of a 6 year old](#) (0:13 min) to see how a lap belt or incorrectly fitting seat belt can cause injury.

As you saw in the video, in a lap-only belt, a child will be thrown forward in a crash.



This can result in serious head, internal and/or spinal injuries.

The lap/shoulder belt must be worn with the shoulder belt over the shoulder and against the chest and the lap belt over the hip bones. As pointed out previously, the shoulder belt must NEVER be placed behind the back or under the arm.





Watch the video [Securing a child using a seat belt](#) (0:23 min).



## Aftermarket Products for Seat Belts

In addition to aftermarket products for child car seats, there are aftermarket products that are designed to adjust the shoulder belt so that it doesn't rub on the child's neck e.g. seat belt adjusters.

If the shoulder belt rubs against the child's neck, it is a good indicator that a booster seat is still needed

According to Transport Canada seat belt adjusters "...pull the shoulder portion and the lap portion of the seat belt together. This tends to pull the shoulder portion of the seat belt off the face of the child but normally pulls the lap portion of the seat belt up onto the soft abdominal area. In the event of collision, the location of the lap belt can cause serious injury or death to the occupant. There are other types of adjusters available, all of which are designed to pull the shoulder belt away from the face of a child and all of which change the configuration of the lap belt."

For examples of these products, see the Transport Canada page [Third-party aftermarket products for children's restraint systems](#).

## UNIT 14

# Lock a Seat Belt

## Objectives

This unit covers standards under section 2.6 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge and skills objectives:

### Knowledge

On successful completion of this unit, students will be able to:

- Describe how a seat belt locks
- State that the seat belt must be locked when installing a child car seat

### Skills

- Demonstrate manually locking the seat belt
- Demonstrate correctly using a locking clip

## Topics

- Built-in locking mechanisms
- Manually locking a seat belt
- Types of latch plates



As previously discussed, when installing a child car seat using a seat belt, the seat belt must be locked. This will keep the child car seat snug to the vehicle seat and ensure it is in position in a crash.

To lock the seat belt you need to:

- Determine how the seat belt locks
- Lock the seat belt

Remember that during self-study you just need to read through this content for a basic understanding, you will get an opportunity to practice locking seat belts in the hands-on session.

## Determine seat belt locking

Remember, some child car seats come with lock-offs that will lock the seat belt. In this case, as long as there isn't an inflatable seat belt, you don't need to look any further.

If the child car seat does not have a lock-off, then you need to determine if the seat belt has a locking mechanism. The recommended way to find out how to lock the seat belt is to look in the vehicle owner's manual under seat belts and child safety.

**Educator Tip**

When guiding a person to install their child car seat, have them look up the type of seat belt in their vehicle owner's manual

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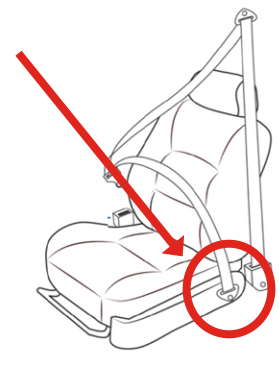
The vehicle owner's manual will tell you what mechanism is used to lock the seat belt and provide instructions on how to do it.

There might be times when the vehicle owner's manual is not available and there is no internet to look it up online. In this case you will need to look closer at the seat belt to determine how it locks. To do this you need to:

1. Check if the seat belt is inflatable
2. If the seat belt is not inflatable, check if the latch plate locks
3. If the latch plate doesn't lock, check if the shoulder belt retractor locks.
4. If the retractor doesn't lock, check if you need a locking clip.

## Is the seat belt inflatable?

Inflatable seat belts are not very common and are only located in the outboard seating positions. But if the seating position has one you don't need to look further, the locking mechanism will be in a lap belt retractor — located on the lap portion of the seatbelt in this location:



## Does the latch plate lock?

If the seating position does not have an inflatable seat belt, then look at the latch plate to see if it is a locking latch plate. Remember, a locking latch plate will have some type of mechanism attached to the tongue of the latch plate or have a switch on the back:



If you're not sure, another way to check if the latch plate locks, is to:

- Buckle up the seat belt
- Pull up firmly on the lap portion of the belt
- If the webbing doesn't move through the latch plate, the latch plate has locked the seat belt.



## Does the shoulder belt retractor lock?

In most vehicles, the mechanism for manually locking the seat belt is in the shoulder retractor. Remember a retractor is the mechanism that stores the seat belt webbing and the latch plate is the part of the seat belt that attaches to the buckle.

1. Gently pull the webbing of the shoulder belt out as far as it will go
2. Do not tug or yank on the webbing as this might create enough force to activate the “crash” or “emergency” locking mechanism
3. Once the webbing is all the way out:
  - a. Allow a short amount of the webbing to retract, then stop
  - b. If you heard a ratcheting sound, this is a hint that the shoulder retractor can be locked.
  - c. Try to pull the webbing back out again
  - d. If the webbing doesn’t move, it’s locked: the mechanism for manually locking the seat belt is in the shoulder retractor



## Does it need a locking clip?

If the latch plate or retractor doesn't lock the webbing, then check the vehicle owner's manual to see if the seat belt requires a “locking clip” when securing a child car seat.

A locking clip is an “H”-shaped piece of metal. If a locking clip is not provided with the child seat, it may be purchased from a retailer or obtained from the manufacturer.



## Lock the seat belt

The seat belt is locked at different times in the installation process depending on how the seat belt locks.

- Child car seat lock-off
- Locking latchplate
- Retractor
- Locking clip

### Child Car Seat Lock-off

If the child car seat has a lock-off, then it should be used except with an inflatable seat belt. These are usually activated once the seat belt is tightened. Remember to refer to the manufacturer's instruction for directions on how to use the seat's lock-off.



### Locking latch plate

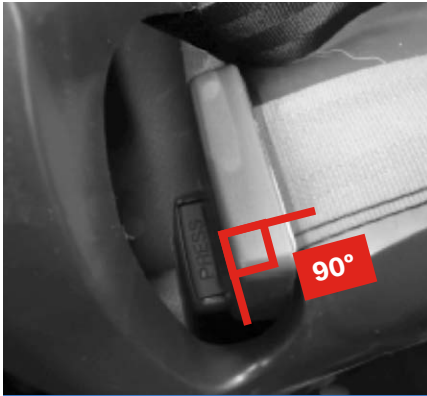
With a locking latch plate, the seat belt locks when you tighten the seat belt.

One of the issues that can impact the ability for this type of seat belt to remain locked, is the angle between the latch plate and the webbing.

Generally, these types of seat belts are designed to remain locked when the latch plate is parallel to the webbing – as it would be when over a passenger's hips.



Sometimes, when installing a child car seat, this angle can be increased, preventing the seat belt from staying snug:



*The latch plate is sitting at a 90° angle to the webbing on an infant seat base*

Unless not allowed by the vehicle manufacturer, you can twist the buckle up to 3 times to bring the latch plate down and decrease this angle:



*Buckle is twisted to shorten its length*

Twisting the buckle will also help if any type of latch plate ends up on the base preventing the infant seat from attaching to the base:



*The buckle is twisted enough to bring the latch plate out of the belt path of this base*

## Retractor

Locking a retractor is the same whether it's a shoulder retractor or lap belt retractor. They should be locked after the seat belt has been attached, but before the seat belt is tightened. To activate a retractor, pull the seat belt webbing all the way out of the retractor to the end and slowly let it go. You should hear a clicking sound as it goes back in the retractor.

## Locking clip

Locking clips are only used on lap/shoulder seat belts with sliding latch plates. And usually they are only needed in older vehicles. They **MUST NEVER** be used on a lap-only seat belt. The locking clip essentially functions like a locking latch plate once installed. And they should **ONLY** be used if the vehicle owner's manual states it is necessary. Locking clips sometimes come with a child car seat, check the child car seat owner's manual for the location of the locking clip.

To attach a locking clip:

1. A locking clip is attached to the lap and shoulder portion of the seat belt within 2.5 cm (one inch) of the latch plate.



2. First, use the seat belt to attach the child car seat to the vehicle seat. Tighten the seat belt as much as possible and then pinch the lap and shoulder belts together close to the latch plate.



3. Keep the seat belt pinched together while you undo the seat belt.



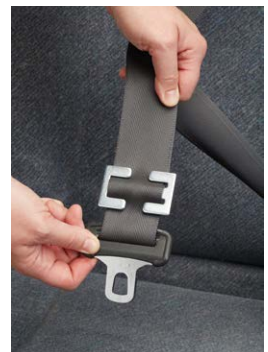
4. Hold the locking clip under the webbing about 2.5 cm (1 inch) from the latch plate.



5. Feed both pieces of webbing through both sides of the locking clip.



6. The attached locking clip should look like this.



7. The seat belt is then reattached and locked in place.



## UNIT 15

# Prepare the Child Car Seat

## Objectives

This unit covers standards under sections 2.5 and 2.6 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge and skills objectives:

### Knowledge

On successful completion of this unit and the hands-on session, students will be able to explain how to prepare a child car seat for both rear and forward-facing installation into a vehicle

### Skills

On successful completion of this unit, students will be able to:

- Demonstrate the correct preparation of a:
  - Rear-facing child car seat including
    - Recline
    - Anti-rebound bar
    - Load leg
    - Harness level
  - Forward-facing child car seat
    - Recline
    - Harness level

## Topics

- Adjust the recline
- Attach/remove anti-rebound bar
- Prepare the load leg
- Adjust the harness level
- Adjust the buckle



Some child car seats need to be prepared for installation into the vehicle. You might have to:

- Adjust the recline
- Attach, or remove the rebound bar
- Prepare the load leg
- Adjust the harness level and buckle slot

## Adjust the recline

All child car seats used rear-facing need to be reclined to some degree. A seat reclined too far or not far enough will affect the functioning of the child car seat. In addition, if a rear-facing child car seat used for a newborn is not reclined enough the baby's head can flop forward interfering with their ability to breathe effectively.

Forward-facing child car seats are usually set in the most upright position, though some manufacturers will allow some recline. You must check the child car seat manufacturer's instructions to determine what angle the seat can be set at.

If you are using a child car seat that goes rear facing i.e., infant, infant/child or infant/child/booster seat, you need to adjust the recline on the seat before installation:

1. Refer to the child car seat owner's manual to determine how the seat reclines. Remember this could be an adjustable leg on the base, a handle at the front, a setting on the base of an infant seat or an adjustable leg.



2. Set the recline as follows:
  - **For a rear-facing child car seat**, at the furthest recline possible or as per manufacturer's instructions for the child's age and stage of development.
  - **For a forward-facing child car seat**, set the seat in the most upright position. Some manufacturers will allow some recline in a forward-facing seat. You need to check the instructions for direction on recline.

*Note: The recline can be further adjusted to the correct angle once the seat is attached to the vehicle seat.*

## Attach or remove anti-rebound bar

As discussed previously, some child seats come with an anti-rebound bar. If using a child car seat rear facing, check the manufacturer's instructions for information related to anti-rebound and if necessary, how to attach the anti-rebound bar.



## Prepare the load leg

As previously discussed, some rear-facing child car seats come with a load leg to decrease the forces on a child from rebound. You must check the vehicle owner's manual to see what seating positions a load leg can be used in. A load leg doesn't always fit into every seating position e.g., when the floor in front of the seating position is uneven.

The load leg is often stored under the seat and must be pulled out to use. Sometimes the load leg comes separately and must be attached to use it. You will need to check the manufacturer's instructions on how to use it.



## Adjust the harness and buckle

Before using the child car seat, you need to determine if the harness and buckle are in the correct slots and if necessary, change them. To determine if the harness and buckle are in the correct position:

1. **Place the child in the child car seat** with their back and bottom against the back of the child car seat and put the harness over their shoulder.
2. **Check the harness level** in relation to the child's shoulders to ensure it's at the right level for the direction of use:



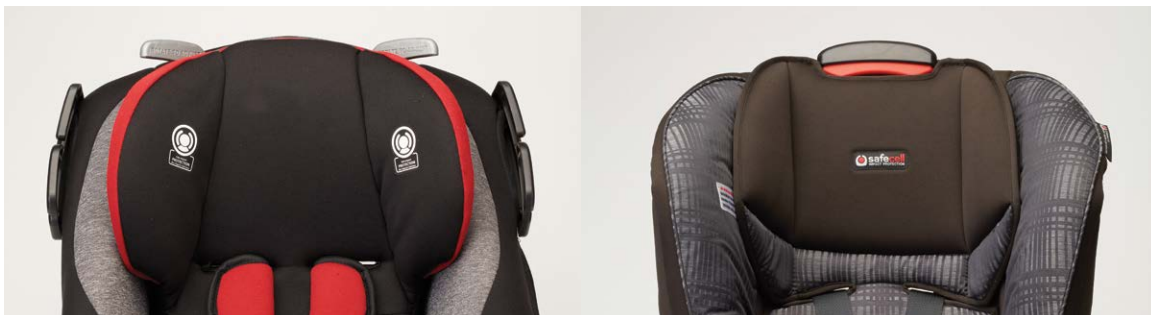
*Rear-facing: use the slot at or below the level of the child's shoulders*



*Forward-facing: use the slot at or above the level of the child's shoulders*

3. If needed, **adjust the harness**. Remember the harness is either adjusted using a built-in mechanism or manually.

Refer to the child car seat owner's manual to determine if there is a built-in mechanism for adjusting the harness height i.e. lever or handle.



To adjust the harness manually:

### 1. Disconnect the harness from the splitter plate



### 2. Pull the harness out of the slots

For some child car seats the harness is one long piece of webbing and for others there are two separate straps, both come up through holes in the bottom of the seat.



### 3. Adjust the webbing

For webbing that is one long piece, you might have to adjust the webbing so the straps are even.



### 4. Rethread the harness through the desired slots

**NOTE:** Some child car seats that can be used both rear and forward facing, only allow certain harness slots to be used forward facing. These slots are designed to withstand the extra forces placed on them when the harnesses are pulled forward in a crash. The manufacturer's instructions must be checked to determine which harness slots can be used in the forward-facing mode.



### 5. Re-attach the harness to the splitter plate

On most child car seats the ends of the harness have two different locations or loops where the splitter plate can be attached. The upper loop is used for smaller children and the lower loops are used for taller children. Use the loop that gets the best fit for the child.



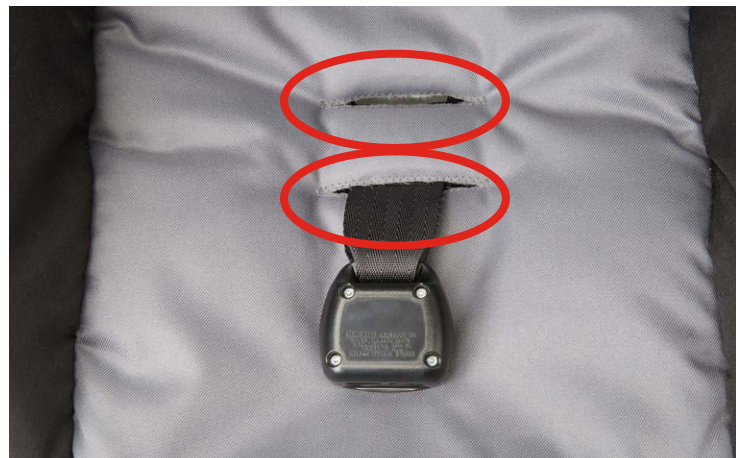
### 6. Check the position of the crotch buckle

It should be positioned close to the child's body, but not under the child.

If the buckle is not in the best position, check the manufacturer's instructions to see if the position can be changed. If it can, there will be more than one slot in the seat where the crotch strap comes out.

On most child car seats, the crotch strap connects to a metal ring under the bottom of the seat.

Push the metal ring up and out through the slot and back down through the desired slot:



This seat has two slots for the crotch strap



## UNIT 16

# Install the Child Car Seat

## Objectives

This unit covers standards under section 2.6 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge and skills objectives:

### Knowledge

On successful completion of this unit and the hands-on session, students will be able to explain how to install a child car seat in a vehicle both rear and forward-facing.



### Skills

On successful completion of this unit in the hands-on session, students will be able to:

- Demonstrate the correct installation of:
  - The following child car seats in the rear-facing mode:
    - Infant only seat
    - Infant/child
    - Infant/child/booster
  - The following child car seats in the forward-facing mode:
    - Infant/child
    - Infant/child/booster
    - Child/booster
  - Booster seat
- Demonstrate installing a seat with:
  - Seat belt
  - UAS connectors
- Demonstrate using a pool noodle to adjust recline of a rear-facing child car seat

## Topics

- Choosing a vehicle seat
  - Preparing a child car seat
  - Attaching the child car seat
    - With a seat belt
      - Manually locking a seat belt
      - Problem solving seat belt issues
    - With UAS connectors
  - Attaching the tether strap correctly on forward-facing child car seats
- 

Once the child car seat is prepared, it is ready to be installed. Though there are some differences, installing a child car seat follows these basic steps for both rear facing and forward facing:

- Read the appropriate sections of both the child car seat and vehicle owner's manuals before installing
- Determine if able to use UAS and if allowed, use it
- Place the child car seat on the vehicle seat
- Thread the flexible UAS or seat belt through the appropriate belt path
- Connect the child car seat to the vehicle seat
- If needed, manually put the seat belt into the locking mode
- Tighten flexible UAS or seat belt

Because there are some differences when installing a child car seat in the different modes, the detailed instructions will be discussed separately.

*Note: Most booster seats do not need to be installed so these are discussed in the unit on securing the child in the seat.*

# Install a Rear-Facing Child Car Seat

In addition to the basic installation steps, for a rear-facing child car seat you need to:

- Secure the load leg if required
- Recline the seat
- Position the handle if installing an infant seat
- If the child car seat manufacturer requires it, attach a rear facing tether



## 1. Determine if able to use UAS

Studies have shown that using UAS decreases the amount of misuse. Therefore, it is best practice to use the UAS if allowed based on the child's weight and criteria set by the child car seat and vehicle owner's manual.

If you cannot find the instructions in either the vehicle owner's manual or child seat owner's manual and the child weighs 18 kg (40 lb) or more, install the child car seat using the seat belt

## 2. Place the seat or base on the vehicle seat

Placing the child car seat or infant seat base on the vehicle seat before attaching it, allows you to assess if that seating position is going to be a good fit. It also allows you to adjust the recline if needed. **NOTE:** Nothing should be placed under the child car seat unless the child seat manufacturer's instructions allow.

When you place the child car seat or base on the vehicle seat check that:



Part of this child car seat hangs over the vehicle seat

### All or most of the child car seat is sitting on the vehicle seat

If the child car seat hangs over the edge of the vehicle seat too far, check the manufacturer's instructions to determine how much, if any, overhang is allowed

### The seat sits flat on the vehicle seat

The child car seat should not block or cover the seatbelt.



### The seat doesn't push against the front seat

The child car seat shouldn't push against the back of the vehicle seat in front. This interferes with the way the child seat is designed to function.



### The seat is reclined to the desired angle

On some infant seats there are settings on the base for the child's age and weight. Some of these seats will adjust for the angle of the vehicle seat.

But on most seats, you must estimate the angle in relation to the ground. An infant seat should be at a 45-degree angle for a newborn.



As the child gains control of their head and neck, this angle can be decreased. Some child car seats have recline labels on the seat to guide how much to recline the seat based on weight and age of the child.

*Note: Only rely on the level indicators or gauges on the child car seat if the vehicle is parked on a level surface.*



Sometimes, it can be difficult to get a seat reclined enough. In these cases, if allowed by the child car seat manufacturer, use either a tightly rolled towel or some form of dense foam, such as a pool noodle, to provide more recline. The towel or pool noodle (cut to the width of the child car seat) is placed under the front of the child seat.

### 3. Install the load leg, if required

As previously mentioned, some rear-facing child car seats come with a load leg to decrease the impact of rebound. You must refer to the vehicle owner's manual to see what seating positions can be used for a load leg. Sometimes the vehicle floor has a hump that makes it impossible to install the load leg and if the vehicle floor is hollow in front of the vehicle seat e.g. where a stow away seat is stored, then it can't be used.

The load leg is pulled out until it reaches the floor of the vehicle and then locked in place.



It's important that the load leg isn't pulled out too far and lifting the child car seat off the vehicle seat

### 4. Thread the flexible UAS or seat belt through the belt path

Remember that a belt path is where some types of flexible UAS connectors or a seat belt is routed through the child car seat before it is attached to the vehicle seat. Remember there are flexible UAS that are attached to a child car seat and do not get threaded through a belt path.



**For a seat with two belt paths, it is always the belt path closest to the back of the vehicle seat**



**Belt path on a base**



**Belt path on an infant seat without the base**

Not all infant seats can be installed without the base, but when it's allowed, only the lap belt portion of a lap/shoulder seat belt is threaded through the belt path. Remember to always refer to the child seat manufacturer's instructions to confirm the correct belt path.

## 5. Connect the child car seat to the vehicle seat

Attach the UAS connectors to the UAS anchors or do up the seat belt. If using rigid UAS connectors, refer to the manufacturer's instructions for their use. Usually, the connectors need to be pulled out and then attached to the UAS anchors. Some will have the ability to adjust the angle to attach to an anchor deeper in the seat bight.

If using a flexible connector with a hook, make sure the hook is attached over the top of the UAS anchor not underneath.



In addition, when putting a flexible UAS connector through the belt path, ensure the webbing adjuster on the connector faces away from the child car seat, to make it easier to access and adjust the tightness of the connector.

If it is facing toward the child car seat, re-thread the webbing through the belt path to switch the adjuster to the opposite side of the child seat. This will allow the adjuster to be accessible.



## 6. If using the seat belt, lock it

Remember that a child car seat needs to be secured with a locked seat belt system. See Unit 15 to review locking the seat belt. Remember the locking mechanism could be:

- A lock-off on a child car seat
- The shoulder belt retractor
- The lap belt retractor
- A lockable latch plate
- A locking clip

## 7. Tighten the flexible UAS or seat belt

When using the flexible UAS or seat belt, put your hand in the child seat and push down to apply pressure and pull the seat belt or UAS connector tight.



*These images are of a forward-facing seat but the same applies to rear-facing*

*Note: It is not recommended to use your knee and put all your weight into the child car seat. This could damage the child seat.*

To test for tightness, hold both sides of the child seat at the belt path that is being used. Firmly move the child seat from side to side and front to back. There should not be more than 2.5 cm (one inch) of movement.

## 8. Check the recline

Sometimes when the child car seat is tightened, the recline changes. Look at the recline of the seat and adjust as necessary.

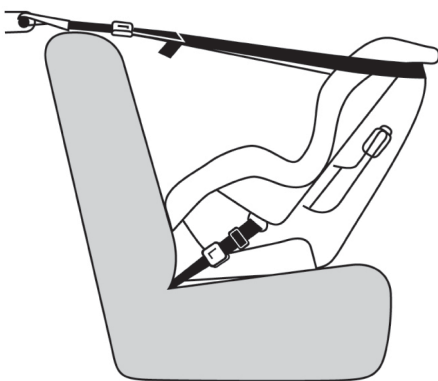
## 9. Position handle of infant seat

When installing an infant seat, the manufacturer's instructions need to be checked to see what position the handle needs to be in. On some infant child seats it needs to be upright, others back behind the seat.

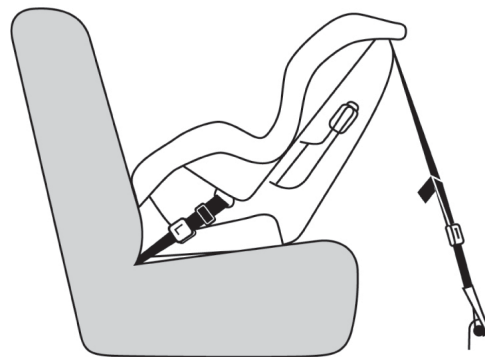
## 10. If recommended, attach a rear-facing tether

Though not common, some child car seat manufacturers recommend the use of a tether in the rear-facing mode. The Canada Motor Vehicle Safety Act states that tether straps can and should be used with a rear-facing child car seat if the infant/child seat is equipped with a tether strap and its use is recommended by the manufacturer.

There are two methods of attaching them; the Australian and Swedish method. In Canada, only the "Australian" method has been tested by Transport Canada. Transport Canada recommends that consumers do not use the Swedish method (see Figure below) unless the vehicle manufacturer has identified it as being an appropriate location. Consumers may be required to contact their vehicle manufacturer for this information.



*Australian method*



*Swedish method*

# Install a Forward-Facing Child Car Seat

Though many of these steps are the same, there are some important differences with forward-facing child car seats: recline and top tether.

## 1. Determine if able to use UAS

As previously mentioned, it is best practice to first consider the UAS to install a child car seat and if allowed in the chosen seating position, use it.

Check the child car seat and vehicle manufacturer's instructions to determine if UAS is available in the seating position and if the child is within the allowable weight limit for UAS. If you cannot find the instructions in the child seat owner's manual and the child weighs 18 kg (40 lb) or more, install the child car seat using the seat belt.

## 2. Place the seat on the vehicle seat

Placing the child car seat on the vehicle seat before attaching it, allows you to assess if that seating position is going to be a good fit. **REMEMBER:** Nothing should be placed under the child car seat unless the child seat manufacturer's instructions allow.

When you place the child car seat on the vehicle seat check that:

- All or most of the child car seat is sitting on the vehicle seat. If the child car seat hangs over the edge of the vehicle seat, check the manufacturer's instructions to determine how much, if any, overhang is allowed
- The seat sits flat on the vehicle seat and does not block or cover the seatbelt
- The seat is upright or reclined as allowed by the child car seat manufacturer's instructions.

### 3. Thread the flexible UAS or seat belt through the belt path

Remember that a belt path is where the flexible UAS connector or seat belt is routed through the child car seat before it is attached to the vehicle seat.

And always refer to the child seat manufacturer's instructions to confirm the correct belt path.



### 4. Connect the child car seat to the vehicle seat

Attach the UAS connectors to the UAS anchors or do up the seat belt.

If using rigid UAS connectors, refer to the manufacturer's instructions on their use. Usually, the connectors need to be pulled out and then attached to the UAS anchors. Some will have the ability to move up and down to make it easier to attach to an anchor deeper in the seat bight.



If using a flexible connector with a hook connector, make sure the hook is attached over the top of the UAS anchor not underneath.



In addition, when putting a flexible UAS connector through the belt path, ensure the webbing adjuster on the connector faces away from the child car seat to make it easier to access and adjust the tightness of the connector.

If it is facing toward the child seat, re-thread the webbing through the belt path to switch the adjuster to the opposite side of the child seat. This will allow the adjuster to be accessible.



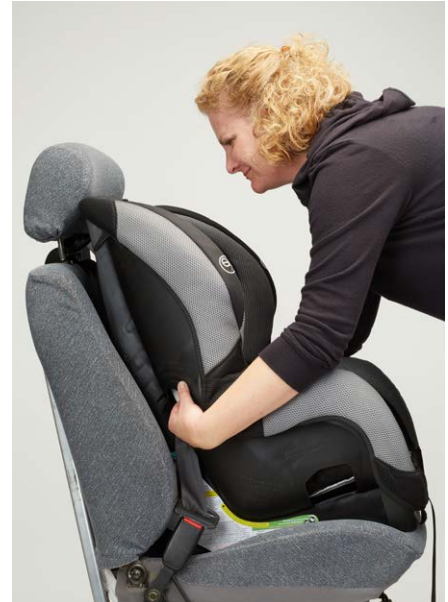
## 5. If using the seat belt, lock it

Remember that a child car seat needs to be secured with a locked seat belt system. See Unit 15 to review locking the seat belt. Remember the locking mechanism could be:

- A lock-off on a child car seat
- The shoulder belt retractor
- The lap belt retractor
- A lockable latch plate
- A locking clip

## 6. Tighten the flexible UAS or seat belt

When using the flexible UAS or seat belt, put your hand in the child seat and push down to apply pressure and pull the seat belt or UAS connector tight.



*Note: It is not recommended to use your knee and put all your weight into the child car seat. This could damage the child seat.*

To test for tightness, hold both sides of the child seat at the belt path that is being used. Firmly move the child seat from side to side and front to back. There should not be more than 2.5cm (one inch) of movement.

## 7. Attach tether

Attach the tether strap to the tether anchor and tighten. It is always best practice to refer to the vehicle owner's manual to determine the correct tether anchor location. Remember, all forward-facing child car seats must be secured in the vehicle with a tether strap.



## Installing difficulties

Transport Canada only regulates how occupant protection functions, not how it is designed. If the vehicle and child car seats meet the appropriate CMVSS requirements, manufacturers can design vehicles and child car seats any way they want. That is why there is such a variety in the design of child car seats, vehicle seats (size, angle) and tether anchorage locations.

It's these differences in design that can sometimes create problems with the latch plate when installing car seats, including:

- Latch plate in the belt path
- Locking latch plate not locking

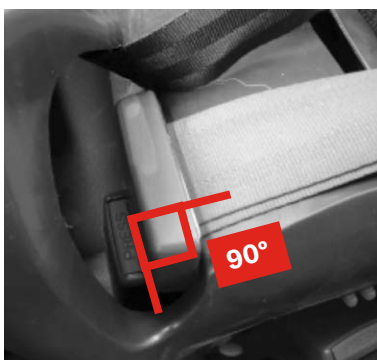
Following are the solution to these latch plate issues:

### Latch plate in the belt path

As previously discussed, there are two problems that can happen when tightening the seat belt in relation to the latch plate. The latch plate ends up in the belt path:

- At a position that creates a 90-degree angle between the latch plate and webbing, which interferes with the ability to create a snug fit or prevent the seat belt from locking
- On the base of an infant seat making it impossible to attach the infant seat

To mitigate these two issues, if the vehicle owner's manual allows it, you can twist the buckle to shorten the webbing and change the position of the latch plate, so it doesn't sit in the belt path. If allowed, a seat belt buckle can be twisted up to three full turns to shorten the stalk.



*Buckle and latch plate at 90 degree angle*



*Twisted buckle to shorten webbing*



*Latchplate and buckle are now clear of belt path*

## Locking latch plate not locking

Sometimes, when installing a child car seat in a vehicle seat with a seat belt with a locking latch plate, the latch plate ends up at an angle that prevents it from locking the webbing. To solve this problem, you can try turning the latch plate around 180 degrees if the vehicle's owner manual allows it. This changes the angle, allowing the latch plate to lock. Not all buckle systems will allow this.

## UNIT 17

# Secure the Child in the Car Seat

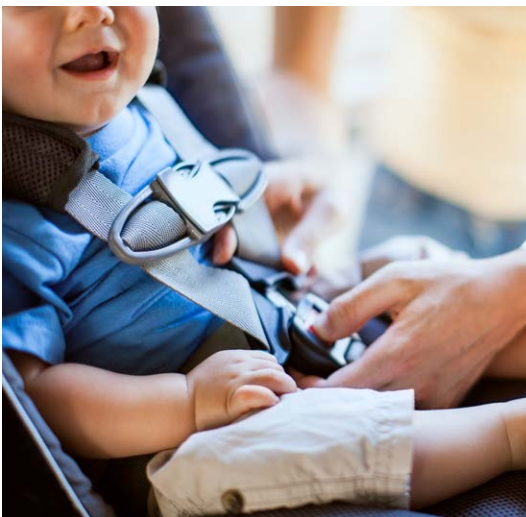
## Objectives

This unit covers standards under section 2.5 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge and skills objectives:

### Knowledge

On successful completion of this unit and the hands-on session you will be able to:

- Describe how to secure a child in a child car seat with and without the harness
- Recognize the need to refer to the child car seat manufacturer's instructions.



### Skills

On successful completion of this unit, students will be able to:

- Demonstrate securing a child correctly in a child car seat with the harness:
  - Adjusting the harness level – manual and using the built-in mechanism
  - Adjusting the crotch buckle
  - Securing the harness system
  - Securing the chest clip
  - Tightening the harness
- Demonstrate supporting an infant
- Demonstrate securing a child correctly in a child car seat without the harness

## Topics

- Securing a child with a harness system
- Securing a child without a harness system

A child can be secured in a child car seat using a harness system or in the case of a booster seat, without the harness. The steps to secure a child in a child car seat are basically the same whether rear or forward-facing so these are covered together in this unit.

## Securing a Child in a Seat with a Harness

Remember, when using any child car seat, you should refer to the manufacturer's instructions either in the owner's manual or on the labels on the seat.



Once the child car seat is prepared and installed in the vehicle, you can secure the child into the seat.

Remember you should not:

- Put anything under the child
- Use an aftermarket product e.g., head hugger, bunting bag, harness cover, seat liner
- Do not attach hard toys to the child car seat e.g., mobile
- Do not dress the child in bulky clothing. Put a blanket over the child to keep them warm.

**To secure the child:**

1. Place the child in the child car seat and put the harness over their shoulders.  
To ensure a good fit for an infant, ensure the infant's bottom is all the way to the back of the child seat.

**Important:** There should be nothing added under the child and the child should not wear bulky clothing. As discussed in Unit 7, these can impact how the child car seat functions increasing the risk of injury and ejection.

2. Click the latches firmly into the crotch buckle. For some buckles it takes quite a bit of pressure to get the latch secured. Make sure you hear the latch click into the buckle.



*Ensure latch is firmly clicked into buckle*

3. Check if the length of the harness is even on both sides. When the harness is one long piece of webbing it is easy for the harness to be longer on one side than the other. Uneven harnesses will not tighten properly. To check if the harness straps are even:

- a. Place a hand under harness straps and pull out from the child. The straps should be the same length on both sides.



*Uneven harness*



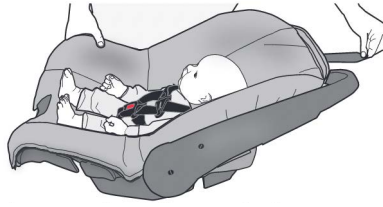
*Even harness*

- b. If the straps are uneven, on the side with the shorter harness, pull the harness webbing through the slot in the bottom of the seat until both sides are even.

4. Tighten the harness. Remember, you must look at the child car seat manufacturer's instructions to determine how a seat's harness is adjusted.



*Tightening harness*



5. Secure the chest clip and adjust it so it is level to the child's armpit. Although there are different styles of chest clips, they are all adjusted by sliding the pieces up or down on the harness strap.



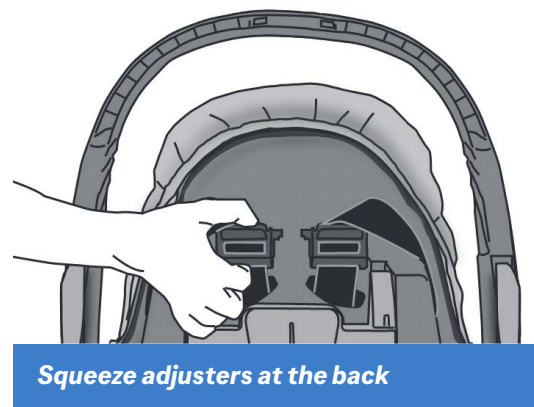
*Chest clip is secured at child's armpit level*



*If a fold can be pinched in the harness, it is too loose*

6. Check the tightness of the harness to ensure it is snug. The harness must be snug to give the fullest benefit of the ride down time in a crash. A snug harness should not allow any slack in the webbing. To test tightness, pinch the harness together at the child's collarbone. If you can pinch a fold, it is too loose.

*Note: To remove the child from the child car seat, loosen the harness. On some seats you need to, press down or lift up on the harness release lever, put your hand under the chest clip and pull the harness out. Or if the harness is adjusted from the back, squeeze the harness adjuster and pull the harness from the front of the seat.*



7. Many child car seats come with head support from the manufacturer. Remember, you need to check the manufacturer's instructions for correct use of these supports.

# Securing a Child in a Seat Without a Harness System

Securing a child in a booster seat is much less complicated than securing them in a child car seat with a harness system:

1. Place the booster on the vehicle seat. Usually a booster seat does not need to be secured to the vehicle seat, however there are some booster seats that have a rigid UAS that can be used. Check the child car seat owner's manual to see if they must be used.

2. Sit the child on the booster seat.

The back of a high-back booster can also be raised to adjust to the child's height. Always follow the manufacturer's instructions when securing the child in the booster seat.

If using a no-back booster, ensure that the child's head is supported with their ears below the top of the vehicle seat or head restraint. If the child's head is not supported either a different seating position is needed, or the child needs a different booster seat e.g. high back booster.

3. Thread the lap/shoulder belt through the guides provided with the booster seat.



*The belt guides are used to position the shoulder belt correctly*



*On a no-back booster seat, use the belt positioning guide to help position the shoulder belt correctly*

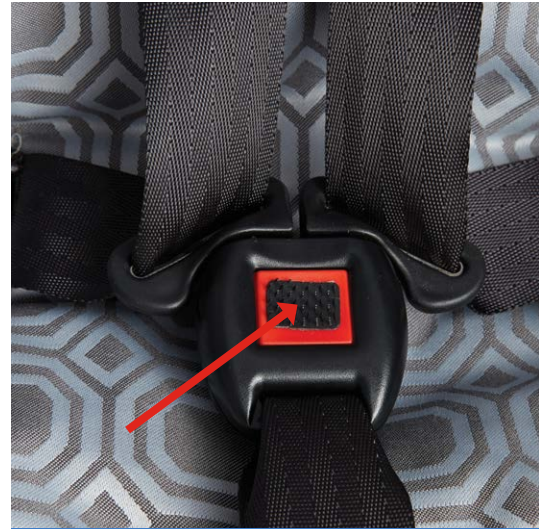
4. The shoulder belt must go over the child's shoulder and across the chest. The lap belt sits snugly over the hips.

## Problem solving securing issue

### Child undoing the buckle

If a child is undoing the chest clip and/or buckle on the child car seat, attaching the “rough” side of a piece of Velcro makes it too uncomfortable for most children to undo.

An adult can still press the button without difficulty. Velcro can be purchased as small “stick-on” circles or squares. Make sure the piece of Velcro is small enough to just cover the button.



*Velcro added to buckle*

## Review



Now that you've read how to use a child car seat, review your learning by watching the following **Car Seat Safety by Age** videos from Children's Hospital of Philadelphia (CHOP):

- [Infants in Rear-Facing Seats](#) (7:13 min)
- [Toddlers in forward-facing seats](#) (6:53 in) and
- [Booster Seat Safety](#) (4:06 min).

Links to these videos can be found in the [Community under CPS Educator II Course – Student](#).

## Activity

- Complete online Knowledge Exam on the main page of your Community by clicking on **Begin the exam** in the BCAA CPS Educator II Exam box.

You **MUST** complete the exam prior to attending the hands-on session. There will be a review of the exam during the hands-on session. You can access your results with your answers by clicking on the date under Past results in the BCAA CPS Educator II Exam box. You can print or save a PDF of the results by choosing Print in your browser menu.

## UNIT 18

# Unsafe Practices

## Objectives

This unit covers standards under section 2.9 of the [BCAA CPS Educator Practice Standards](#) with the following knowledge objectives:

On successful completion of this unit, students will be able to:

- Describe and identify common hazards for child passengers
- State common myths or misconceptions related to child passenger safety
- Describe misuse of child car seats, seat belts and the impact on child passenger safety

## Topics

- Hazards
- Third-party aftermarket products
- Bulky clothing and padding
- Myths
- Misuse



There are many behaviors and attitudes that can lead to an unsafe situation for children travelling in a vehicle. In this unit we will discuss some common hazards, myths, and misuse. You will get an opportunity to practice identifying unsafe practice in the hands-on portion of the course.

## Hazards

When a vehicle is traveling at 100 km/hr, it's not only the passengers that are moving at that speed, but also everything else in the vehicle. So, at the time of a crash, unless they're secured in place, everything inside the vehicle will move toward the point of impact at whatever speed the vehicle was going. The unrestrained occupant, the paint can in the cargo area, an unattached booster seat, even the family dog becomes a projectile and can inflict significant injuries to other occupants.



In addition, even when something is secured, if it's not secured in a way to withstand the forces in a crash it too can become a projectile. Mirrors, mobiles and hard toys are common items that parents, or caregivers use to entertain and in the case of a mirror, see their child.



These items are not required to meet any standard that ensures they will not break free. And most of them are made of hard plastic or have hard parts that can injure a child. Even if the packaging says, 'crash tested', this does not mean they have been through the type of rigorous testing needed for crash worthiness. For this reason, it is best practice to recommend these not be used.

## Third-Party Aftermarket Products

In addition to the parts that come with a child car seat, there are aftermarket products that are manufactured and sold separately. According to [Transport Canada](#), a third-party aftermarket product is “one that is designed to be used with the car seat but was not supplied with the car seat or by the manufacturer of the car seat”. Some commonly used aftermarket products are:

- Bunting bags
- Padded liners
- Head huggers
- Seat liners
- Harness strap covers

These products are not regulated by Transport Canada, and some can impact the functioning of a child car seat and hence pose a risk to the child. Remember, even if a product says ‘crash tested’, that doesn’t mean that it meets safety standards or that it is safe to use. The safest rule is **if it didn’t come with the seat, don’t use it**.

For more information about aftermarket products refer to: [Transport Canada](#).

## Bulky clothing and padding

Anything that adds bulk between the child and the child car seat poses a risk. According to [Transport Canada](#):

“Any additional padding behind the child can induce both slack in the harness and additional compressibility. The Standard, which regulates children's restraint systems, only allows for a certain amount of compressibility in the foam and material used. By increasing this amount, during a collision the additional foam/material can compress to the point that the harness system becomes very loose and therefore no longer is capable of restraining the child.”

Therefore it is best practice to recommend parents and caregivers not dress their child in bulky clothing like snowsuits and winter jackets, and not put anything under the child like a blanket. To keep a child warm, they can put blankets or winter covers over top of the child and the child car seat. For more information, read the BCAA blog [Why Winter coats and car seats don't mix](#)



## Myths

THERE ARE MANY MYTHS AND MISCONCEPTIONS ABOUT CHILD CAR SEATS AND SEAT BELTS. IT IS HELPFUL TO BE FAMILIAR WITH THEM. THEY INCLUDE:

### **“I can hold my baby on my lap in a crash.”**

Studies have repeatedly shown that it is impossible to hold onto a baby in any crash — the forces are too great.

### **“My child is uncomfortable when I do the harness up tight.”**

When a harness is done up correctly it will not cause discomfort. The child may not like it, but they will get used to it. Remember, it is more “uncomfortable” for parent and child alike if the child is injured!

### **“It is better to be thrown out of the vehicle than drown or be burned because you can’t get out of the seat belt.”**

Many people have a fear of being caught in their vehicle while it is either on fire or submerged underwater. But less than 1% of all crashes involve fire or water, and a person is four times more likely to be killed when thrown from the vehicle.

### **“I’m only going a short distance.”**

You can never predict where or when a crash will take place... many happen close to home.

### **“I don’t wear a seat belt, but I make my child wear one.”**

Children may not hear what you say but they will do what you do! Many studies have shown that when parents buckle up, their children are more likely to buckle up.

### **“I know someone who would have been killed if they were wearing their seat belt.”**

There will always be stories of this nature, and they could be true, but in fact this is the case in less than 1% of collisions.

### **“Expensive car seats are safer”**

Most expensive seats have features like softer, padded material with coloured prints that make the seat look more appealing or more comfortable. But in fact, all child car seats in Canada meet the same high safety standards. The safest seat is the one that fits the child and fits the vehicle.

### **“It is safe to turn my child forward-facing as soon as they meet the weight and height limits for forward-facing for the car seat.”**

A child is safest rear facing for as long as possible as this provides the best protection for a child’s small body.

**“The same car seat that is sold in the US and Canada is exactly the same.”**

Though this can be true, seats made for use in Canada must meet different safety standards and therefore the manufacturers can build a Canadian and a US model that look the same but are different structurally (i.e., thickness, type of foam etc.) or have different weight requirements.

**“My child must be turned forward-facing when their feet touch the back of the vehicle seat”**

Having a child’s feet up against the back of the vehicle seat when in a rear facing position is not a safety hazard. In a crash, a rear-facing seat will move backwards allowing more room for the legs and on the rebound the child’s knees will bend. It is best practice for a child to remain rear facing until they meet the weight and height limit for the seat.

**“Using both the UAS and the seat belt will make the seat more secure and therefore safer.”**

This should only be done when the manufacturer’s instructions allow it. The child car seat must be tested using both methods at the same time to see if the seat can withstand that extra force using both methods can create i.e. the force created by both the seat belt and the UAS webbing.

**“My child is 4 years old, so they are ready to move to a booster seat”**

A five-point harness is always safer than a seat belt, so it is best practice to keep a child in a forward-facing seat with the harness until they reach the weight and height limit for the seat. Maturity is also a consideration as a child in a booster seat can move around more than a child in a harness. This can result in the child being out of position at the time of the crash.

**“Using the UAS is safer than using the seat belt to secure the child seat.”**

If installed correctly, these methods have the same level of safety.

## Misuse

Identifying misuse and helping others to identify it, is one of the most important roles of a CPS Educator. In the field of child passenger safety, there is no definition or criterion for what “misuse” means. This affects how statistics are reported. One study will show a “misuse” rate of 90%, while the next claims half as much. It all depends on what the “misuse” criteria is in each study. These statistics confuse the user and can make them hesitant to install their own child car seats for fear they are going to do something wrong.



Watch the IIHS video [Importance of Child Restraints](#) (0:51 min) to see what happens in the most serious misuse, not using a child restraint.

To educate the public about child passenger safety, it is helpful to know the types of misuse that put children in unsafe situations:

- Child is unrestrained
- Inappropriate occupant protection
- Child is placed forward-facing too soon
- Loose harness
- No tether is attached
- Wrong belt path is used
- Chest clip too low
- The seat belt is misused

Look at the Misuse Slides in the CPS Educator II Course-Student section in the Educator Resource section of the [Community](#). These slides will provide more detail on the different types of misuse seen when working in child passenger safety.



## Activity

In the CPS Educator II Course-Student section in the Educator Resource section of the [Community](#).

- Find and open the document CPS Misuse Exercise
- Identify the misuse in each scenario
- Find and open the document CPS Misuse Exercise Answers and check your answers

## Key Points: Unit 18

To review, here's what is important to remember about unsafe practices in CPS:

- Objects and occupants inside a vehicle can become a projectile in a crash if they are not secured effectively into the vehicle
- Third-party aftermarket products for child passengers are not recommended to use because they can be unsafe and result in injury. Remember: **If it didn't come with the child car seat, or is not approved for use by the child car seat manufacturer, don't use it**
- Child passengers secured in a child car seat should not wear bulky clothing
- Nothing should be put between the child and the child car seat, e.g. blankets, padding, etc.
- Be aware of the common myths related to CPS and the facts that refute the myths
- The following are common misuse situations you should be aware of:
  - Unrestrained child
  - Inappropriate occupant protection
  - Forward facing too soon
  - Loose harnesses
  - Wrong belt path
  - Seat belt worn incorrectly
  - Reclining a seat too far when wearing a seat belt

# Glossary

Term	Definition
Active airbag	An airbag that is operational. Usually refers to the frontal airbags as they can be deactivated.
Active head restraint	A head restraint that in a rear crash will move up and forward to decrease the distance between the occupant's body and back of the seat.
Aftermarket product	A product that is designed by a third party (not the child car seat manufacturer), for use with a child car seat. These products have not been approved for use with a child car seat.
Airbags	Inflatable cushions, built into a vehicle that function as supplemental occupant protection during a collision. They prevent the occupant from hitting: <ul style="list-style-type: none"> <li>• Hard parts of the vehicle interior, such as the steering wheel, dashboard, or metal frame</li> <li>• Other occupants</li> <li>• Objects outside of the vehicle</li> </ul>
Anit-rebound bar	A metal bar on a rear-facing child car seat, that limits the amount of rebound movement in a crash. These can be permanently attached or detachable.
Anti-rebound mechanism	A mechanism built-in or added to a child car seat that limits the rebound movement that follows the initial forward movement in a crash.
Base	The bottom portion of an infant seat that can detach from the carrier portion of the seat.
BC Motor Vehicle Act	BC laws or statues related to motor vehicles.

Term	Definition
BC Motor Vehicle Act Regulations	The regulations in BC that provide the detail on how to comply with the BC Motor Vehicle Act. These include Division 36 which covers occupant protection for children under 9 years old.
Belt path	Where the flexible UAS connector or seat belt is threaded through to secure the child car seat to the vehicle seat.
Booster seat	A child car seat that boosts a child up so they can fit the vehicle's seat belt correctly.
Buckle	Receptacle that secures and releases the latch plate of a seat belt or latches of a child car seat harness.
Canadian Motor Vehicle Safety Standards (CMVSS)	The standards and technical requirements in the federal Motor Vehicle Safety Act that must be met by importers and manufacturers of everything to do with motor vehicles including child car seats.
Chest clip	A clip that holds the harness in position in a child car seat.
Child car seat	Special occupant protection system for children that is installed into a vehicle.
Child/Booster	A child seat that can be used forward facing with the harness system or as a booster seat.
CPS	Child Passenger Safety.
Crotch buckle	The buckle in the seat of a child car seat, between a child's legs where the latches of the harness are secured.
Crumple zones	See Crush Zones.

Term	Definition
Crush zones	Sections of a vehicle that are designed to crush on impact. It is a very important part of decreasing the forces in a crash, as it increases the ride down time and allows the forces to be absorbed by the vehicle itself, decreasing the forces on the occupants and the potential for injury.
Deactivated airbag	An airbag that is either temporarily or permanently not operational.
Dynamic Latch Plate	Non-locking latch plate found in newer vehicles; does not hold webbing at a fixed length.
Division 36	The section of the BC Motor Vehicle Act Regulations that govern child passengers under 9 years old.
Flexible UAS	A length of webbing with UAS connectors on the end.
Forces	The energy produced in a crash. Force causes injuries in a crash.
Forward-facing	Faces the front of the vehicle.
Frontal airbags	Primary airbags built into the front dashboard and steering wheel of a vehicle that are larger and deploy with greater force than other airbags in a vehicle.
Harness	The webbing that holds the child into a child car seat.
Harness height adjuster	The mechanism on a child car seat for adjusting the shoulder height of the harness.
Harness tightness adjuster	The mechanism on a child car seat for adjusting the tightness of the harness.
High back booster	A booster seat with a high back to support a child's head and neck.

Term	Definition
Infant only seat	A child car seat that can only be used rear facing. Designed for infants: newborns up to approximately 6 months.
Infant/child seat	A child car seat that can be used both rear and forward facing.
Infant/child/booster seat	A child car seat that can be used rear facing, forward facing and as a booster seat.
Inflatable seat belt	Seat belt with an air bag in the shoulder belt portion; found in rear seats of some newer vehicles.
Insert (child car seat)	Additional accessory for child car seats and booster seats provided by the manufacturer to aid positioning, fit and comfort.
ISOFIX	Term used in Europe for the UAS.
Latch plate	The metal tongue that clicks into a buckle.
Law	Rules or statutes which a person or organization must legally follow.
Load leg	A leg that is attached to the base of a rear-facing child car seat and secured to the floor of the vehicle to limit the rebound movement in a crash.
Lock off	A mechanism built into a child car seat for locking the seat belt.
Locking clip	A metal piece that is attached to a lap/shoulder belt to lock a tightened seat belt in place.
Locking latch plate	A latch plate on a seat belt that has a mechanism that locks the seat belt when tightened. Includes locking, cinching and switchable latch plates.
Lower Latch	Term used in the US for the UAS.

Term	Definition
Manufacturer's instructions	The child car seat owner's manual.
Motor Vehicle Restraint Systems and Booster Seats Safety Regulations	The federal regulations that are specific to occupant protection for child passengers. Commonly called the RSSR.
National Safety Mark (NSM)	Label that states the child car seat complies with the Canadian Motor Vehicle Safety Standards.
Newton's Law of Motion	An object in motion remains in motion at the original speed until acted on by an outside force. So, everything in a moving vehicle, including occupants, is traveling the same speed as the vehicle and will continue to do so until stopped by a seat belt, harness, interior of the vehicle or something outside the vehicle.
No-back booster	A booster seat that has no back. These can only be used if a child's head is supported by the vehicle seat.
Non-locking latch plate	A latch plate without a locking mechanism and hence does not lock the seat belt in place when tightened. Includes sliding and dynamic latch plates.
Occupant	Any person traveling in a motor vehicle: driver or passenger.
Rear-facing	Faces the rear of the vehicle.
Rebound	The movement away from the point of impact that follows the initial movement toward the point of impact.
Recalls	See Safety Alert.
Recline indicator	A level indicator or pre-set guides to help determine the amount of recline on a child car seat.
Recline mechanism	A mechanism built into a child car seat to recline the seat.

Term	Definition
Regulations	Subordinate law that provides more detailed rules on how to comply with the statutes.
Retractor	Where the webbing is stored and locks in a crash. All lap/shoulder belts and some lap only belts will have a retractor.
Ride down time	The time it takes a vehicle to come to a complete stop. Increasing ride down time, decreases injuries.
Rigid UAS	Metal bar with a UAS connector on the end that are attached to the metal frame of a child car seat.
RSSR	Acronym for the Motor Vehicle Restraint Systems and Booster Seats Safety Regulations which are the federal regulations specific to occupant protection for child passengers.
Risk Zone	The first 8 cm (3 inches) from where the airbag comes out where the risk of injury is highest. Transport Canada recommends occupants sit at least 25 cm (10 inches) from where the airbag deploys.
Safety alert	Safety alerts, including recalls from Transport Canada for child car seats that do not comply with a safety standard or have a safety defect.
Seat belt guide	Guides on a seat that can be used on a booster seat for the shoulder and lap belt positioning.
Seat belt lock-off	A mechanism built into a child car seat for locking the seat belt.
Section 220	Portion of the BC Motor Vehicle Act that states that a driver of a motor vehicle must ensure a passenger between 6 and 15 (under 16) is wearing a seat belt correctly.
Side airbags	Airbags built into the side of the vehicle seat, vehicle door and window frames. The two main types are torso and curtain airbags.

Term	Definition
Splitter plate	A metal piece where the harness and buckle strap attach to at the back of a child car seat.
Statutes	A law passed by a legislative body e.g. federal or provincial legislatures.
Supplemental Restraint System (SRS)	A term used for airbag and is found on labels where airbags are located.
Tether anchor	A designated anchor where the tether strap attaches to the vehicle.
Tether strap	A piece of webbing with a metal connector that attaches to a designated tether anchor in a vehicle to limit the forward movement of the top of the child car seat in a crash.
UAS	Universal Anchor System.
UAS anchor	Designated anchors in a vehicle seat bight where the UAS attaches to the vehicle.
UAS connectors	Connectors that attach to special anchors in a vehicle seat to secure a child car seat to the vehicle.
Webbing	The fabric that the seat belt is made from.

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## APPENDIX A

# BCAA Child Passenger Safety Educator Practice Standards

The BCAA Child Passenger Safety (CPS) Educator Practice Standards provide an overall framework for CPS Educators in British Columbia. A CPS Educator provides education services about child passenger safety, including the correct use of protection systems for children. The practice standards reflect federal and provincial regulations and are based on recommendations from the Child Passenger Safety Technical Advisory Committee.

### 1.0 General Requirements

- 1.1 The Child Passenger Safety Educator will meet the competencies in Section 2.0 of these practice standards.**
- 1.2 The Child Passenger Safety Educator will meet the requirements set out by the BCAA Child Passenger Safety Program.**
- 1.3 The Child Passenger Safety Educator will adhere to all applicable legal and regulatory requirements related to child passenger safety.**
- 1.4 The Child Passenger Safety Educator will be responsible for keeping his or her own documentation related to work as a CPS Educator.**
- 1.5 The Child Passenger Safety Educator will keep apprised of new advances in the industry.**

### 2.0 Child Passenger Educator Competencies

#### **2.1 The CPS Educator explains collision basics.**

To do so, the CPS Educator must know the following:

- The potential forces in a crash
- The relationship between forces and injury
- How both secured and unsecured occupants move in a crash
- Factors that decrease the risk of injury and death in a crash
- The three collisions in a crash

## 2.2 The CPS Educator explains the basics of occupant protection systems.

To do so, the CPS Educator must know the following:

- The three main occupant protection systems built into a vehicle: crumple zones, seat belts, and airbags, including:
  - How each main protection system works
  - How each protection system protects the occupant
  - The benefit of each system and one to another
- How to determine the following related to airbags in a vehicle:
  - The types of airbags in a vehicle
  - Where airbags are located
  - If there are seating positions with airbags that cannot be used with child passengers
- Explain why a rear-facing child car seat cannot be placed in front of an airbag
- Explain how to safely seat a front passenger in a seating position with an active airbag
- The purpose of a head restraint and its importance in preventing injuries
- How an active head restraint works

## 2.3 The CPS Educator explains how injuries occur.

To do so, the CPS Educator must know the following:

- How injuries occur to both unsecured and secured occupants
- Overall effectiveness of different occupant protection systems
- How injuries may be caused by occupant protection systems
- How a child passenger is at increased risk due to their size and proportion of their bodies, and their maturity
- How injuries can be caused by incorrect use of child protection systems
- How injuries are caused by moving a child into a forward-facing child car seat too soon

## 2.4 The CPS Educator teaches how to select appropriate protection systems for child passengers (up to 16 years old).

To do so, the CPS Educator must know the following:

- The different types of seat belt systems
- The different types of protection systems for children
- Age and height/weight ranges for each type of protection system
- Criteria for choosing a rear- versus forward-facing child car seat when securing a child in a vehicle
- Where to find the following information for a child car seat:
  - Name of manufacturer
  - Date manufactured
  - Model name/number
  - Height/weight ranges
  - How to use
  - Expiry date
  - If approved for use in Canada

- The purpose of the Canadian Motor Vehicle Safety Standards 213, 213.1, and 213.2
- How to determine if there is a Transport Canada safety alert on a child car seat
- B.C. law related to child passenger safety
- Best practices for child passenger safety as set by the BCAA Child Passenger Safety Program
- Criteria for safely securing a child in a seat belt-only system

## **2.5 The CPS Educator correctly secures children in child car seats.**

To do so, the CPS Educator must:

- Know the following:
  - Components of a child car seat, including harness, buckle, latch, and chest clip
  - Correct level of harness straps for each direction of use
  - Proper routing of harness straps
  - Correct level for chest clip
  - Child car seat manufacturer's instructions and the vehicle owner's manual must be referred to for information about using the child car seat
  - B.C. law related to child passenger safety
- Demonstrate doing the following:
  - Assessing and adjusting the harness to the correct height
  - Securing the latch/buckle system
  - Securing and adjusting chest clip to correct level
  - Assessing and adjusting the harness to the correct tightness
  - Consulting the child car seat manufacturer's instructions and vehicle owner's manual

## **2.6 The CPS Educator correctly installs child car seats into vehicles.**

To do so, the CPS Educator must:

- Know the following:
  - Factors to consider in selecting the safest vehicle seating position
  - Requirements for deciding if a child car seat will safely fit in a vehicle
  - Where to find information related to child car seat installation for a particular vehicle
  - The child car seat manufacturer's instructions must be consulted prior to installation
  - The correct angle for rear-facing child car seats
  - The anti-rebound mechanism for a rear-facing child car seat
  - The parts of a Universal Anchorage System (UAS), including connectors, strap, adjuster, and bars
  - Other names used for the UAS system, including LATCH and ISOFIX
  - How to find the location of UAS bars
  - How to determine which seating positions can be used with a UAS system
  - The parts of a seat belt assembly, including the retractor, latch plate, and buckle
  - Purpose and types of locking mechanisms on seat belt systems
  - Where to find information about the locking mechanism for a seat belt system
  - How to assess the locking mechanism on a seat belt system
  - Criteria for determining what direction a child car seat is to be used
  - Location and purpose of a tether strap
  - Where to find the location of tether anchors
  - B.C. law related to child passenger safety
  - The process for installing a child car seat into a vehicle

- b) Demonstrate doing the following:
- Use vehicle owner's manual to select safest seating position in vehicle
  - Consults child car seat manufacturer's instructions
  - For installations using the UAS:
    - Locate UAS bars in vehicle
    - Determine which seating position can be used
  - For installations using a seat belt:
    - Determine if the seat belt has a locking mechanism
    - If yes, determine if it is in the latch plate or in the retractor
    - If in the retractor, activate the locking mechanism
    - If the seat belt has no locking mechanism, determine if it requires a locking clip, and install if necessary
  - If using flexible UAS or seat belt:
    - Determine the appropriate belt path for direction of use
    - Thread flexible UAS or seat belt through the belt path correctly
    - Tighten seat belt or UAS to ensure child car seat is snug
  - Use the recline mechanism and/or devices to achieve correct angle for rear-facing installations
  - Install forward-facing seat upright and flush against vehicle seat back or at a recline allowed by child car seat manufacturer's instructions
  - Locate tether anchorage in vehicle and attach tether hook correctly
  - Secure the tether strap tightly on forward-facing child car seats used with harness straps

## 2.7 The CPS Educator correctly secures children in vehicle seat belt systems.

To do so, the CPS Educator must:

- a) Know the following:
- The factors to consider in selecting the safest seating position, including airbag location and seat belt system available
  - Age/height requirements for seat belt use
  - Correct use of lap/shoulder systems
  - The risk of injury when using lap-only seat belts
  - The process for securing a child car seat into a vehicle using a child car seat
  - B.C. law related to seat belts
- b) Demonstrate doing the following:
- Use vehicle owner's manual to determine safest seating position
  - Secure seat belt system over the child, ensuring the lap belt sits snugly over the pelvis and the shoulder belt lies across and against the child's chest

## 2.8 The CPS Educator correctly assesses child passenger safety.

To do so, the CPS Educator must:

- a) Know the following:
  - What the Canadian Motor Vehicle Safety Standards 213, 213.1, 213.2 cover
  - How to determine the safest vehicle seating position
  - How to assess the appropriateness of the protection system used, including:
    - How to determine if there are any Transport Canada recalls on a child car seat
    - Where to find the expiry date on a child car seat
    - Where to find the height/weight ranges for a child car seat
    - Criteria to determine if a child car seat fits in a vehicle
    - Age/height requirements for seat belt use
  - For using a child car seat:
    - Criteria for whether the child should be rear- or forward-facing as contained in Section 2.6 of these standards
    - Criteria to determine if the child is secured to a child car seat correctly as contained in Section 2.5 of these standards
    - Requirements for correctly installing and fitting a child car seat on a vehicle seat as contained in Section 2.6 of these standards
  - For securing with a seat belt system:
    - Criteria to determine if the child is secured in the seat belt correctly as contained in Section 2.7 of these standards
  - The pertinent information to be documented

## 2.9 The CPS Educator explains and identifies misuse, hazards, and myths related to child passenger safety.

To do so, the CPS Educator must:

- a) Know the following:
  - The risk of injuries associated with different types of misuses of occupant protection systems for children
  - The relative risk of injury in various common misuse scenarios
  - The limitations of aftermarket products
  - Potential hazards, including:
    - Unsecured occupants/objects
    - Lap belt only
    - Animal, loose objects, rear-loading
  - Myths, including:
    - Locking clips
    - Seat belt on neck
    - Head over the rear of the seat
    - Rear-facing - feet touching the seat back
  - Misuse including:
    - Unsecured occupants/objects
    - Wrong protection system
    - Unsafe direction of use
    - Extremely loose harness
    - No tether attached
    - Rebound mechanism not used or not used correctly
    - Wrong belt path
    - Bulky clothing

- b) Demonstrate doing the following:
  - Identify common misuse situations:
    - Unsecured occupants/objects
    - Wrong protection system
    - Unsafe direction of use
    - Extremely loose harness
    - No tether attached
    - Rebound mechanism not used or not used correctly
    - Wrong belt path
    - Bulky clothing
  - Recognize hazards, including:
    - Unsecured occupants/objects
    - Lap belt only
    - Animal, loose objects, rear-loading
  - Aftermarket products

## 2.10 The CPS Educator teaches others about child passenger safety

To do this, the CPS Educator must:

- a) Know the following:
  - Adult learning principles
  - Different modes of delivery:
    - Child car seat clinic
    - Information sessions: Virtual and in-person
    - Media
    - Health or community events
  - How to choose the appropriate mode of delivery
  - How to appreciate and accommodate the similarities and differences among the various cultures in British Columbia
  - How to prepare for an education session
- b) Demonstrate the following:
  - Clear communication
  - Following the appropriate facilitator notes for the education session
  - Engaging participants in their learning
  - Observing caregivers securing children in a vehicle and providing guidance only when necessary
  - Letting caregivers make mistakes without immediate correction
  - Guide caregivers to check the use of the seat belt on their own and identify their own mistakes
  - Correctly identifying and guidance to correct mistakes

## APPENDIX B

# Motor Vehicle Act Regulations

[includes amendments up to B.C. Reg. 90/2012, April 20, 2012]

## Division 36 — Child Seating and Restraint Systems

### Definition

#### 36.1 In this Division, the following definitions apply:

**“booster seat”** has the same meaning as **“booster cushion”** in the RSSR;

**“child”** means a person under age 9;

**“CMVSS”** means the Canada Motor Vehicle Safety Standards, as amended from time to time;

**“designated seating position”** means a seating position for which a seat belt assembly is provided or is required to be provided under the Act;

**“MVSR”** means the Motor Vehicle Safety Regulations, C.R.C., c. 1038, as amended from time to time;

**“RSSR”** means the Motor Vehicle Restraint Systems and Booster Cushions Safety Regulations, SOR/98-1591, as amended from time to time.

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[en. B.C. Reg. 218/2007.]

### Exemption from the Act

#### 36.2 Section 220 (6) and (7) of the Act does not apply to the driver of a vehicle in respect of a passenger who is a child within the meaning of this Division.

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[en. B.C. Reg. 218/2007.]

## Obligation on driver

### 36.3

**(1) A person must not drive or operate on a highway a motor vehicle in which there is a child unless the driver or operator does the following:**

- (a) causes the child, other than a child referred to in paragraph (b), to be securely fastened in a designated seating position in the vehicle, in compliance with this Division, using
  - (i) an infant restraint system that complies with all the requirements set out in the RSSR, Schedule 4, CMVSS 213.1,
  - (ii) a child restraint system that complies with all the requirements set out in
    - (A) the RSSR, Schedule 3, CMVSS 213, if the child restraint system is not built into the vehicle, or
    - (B) the MVSR, Schedule IV, Part III, Standard 213.4, if the child restraint system is built into the vehicle,
  - (iii) a booster seat that complies with all the requirements set out in
    - (A) the RSSR, Schedule 5, CMVSS 213.2, if the booster seat is not built into the vehicle, or
    - (B) the MVSR, Schedule IV, Part III, Standard 213.4, if the booster seat is built into the vehicle, or
  - (iv) a seat belt assembly;
- (b) causes the child, if the child has special needs or mobility impairments, to be securely fastened in the vehicle, in compliance with this Division, using
  - (i) an infant restraint system for infants with special needs that complies with all the requirements set out in the RSSR, Schedule 7, CMVSS 213.5, or
  - (ii) a restraint system for disabled persons that complies with all the requirements set out in the RSSR, Schedule 6, CMVSS 213.3;
- (c) ensures that the child
  - (i) remains securely fastened, and
  - (ii) if the child is in a designated seating position, is the only occupant of that designated seating position.

**(2) A child referred to in subsection (1) must be securely fastened as follows:**

- (a) in a restraint system or booster seat referred to in subsection (1) (a) (i), (ii) (A) or (iii) (A) or (b) in accordance with the device manufacturer's instructions for that restraint system or booster seat;
- (b) in a restraint system referred to in subsection (1) (a) (ii) (B) or (iii) (B) in accordance with the vehicle manufacturer's instructions;
- (c) in a seat belt assembly, in accordance with the vehicle manufacturer's instructions,
  - (i) with the pelvic restraint placed firmly across the hips of the child, and
  - (ii) with the upper torso restraint, if there is one, placed over the shoulder and across the chest of the child and closely against the child's body.

**(3) A restraint system referred to in subsection (1) (a) (i) or (ii) (A) or (b) must be secured in the motor vehicle in accordance with the device manufacturer's instructions for that restraint system.**

[en. B.C. Reg. 218/2007.]

## Infant restraint systems

### 36.4

- (1) A child must be fastened in an infant restraint system used in a rearward facing position and specified by the manufacturer to be appropriate for the child's height and weight, until the child attains age one and weighs 9 kg or more.**
- (2) A child who has attained age one and weighs 9 kg or more may continue to be fastened in a restraint system referred to in subsection (1) until, according to the manufacturer's specifications, the restraint system is no longer appropriate for the child's height and weight.**
- (3) The restraint system referred to in subsection (1) or (2) must not be used in a designated seating position that has an active frontal airbag for that seat.**

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[en. B.C. Reg. 218/2007.]

## Child restraint systems

### 36.5

- (1) A child who**
  - (a) has attained age one,
  - (b) weighs 9 kg or more, and
  - (c) is not required, or permitted, to be fastened in an infant restraint system in accordance with section 36.04 must be fastened in a child restraint system used in a forward facing position and specified by the manufacturer to be appropriate for the child's height and weight, until the child weighs 18 kg or more.
- (2) A child who has attained age one and weighs 18 kg or more may continue to be fastened in a restraint system referred to in subsection (1) until, according to the manufacturer's specifications, the restraint system is no longer appropriate for the child's height and weight.**

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[en. B.C. Reg. 218/2007.]

## Booster seats and seat belt assemblies

### 36.6

- (1) A child who is no longer required, or permitted, to be fastened in a child restraint system in accordance with section 36.05 must be fastened on a booster seat, specified by the manufacturer to be appropriate for the child's height and weight, using the vehicle's seat belt assembly until the child reaches a height of 145 cm or more.
- (2) If the vehicle has an available seat belt assembly with an upper torso restraint and a pelvic restraint, other than the driver's seat belt assembly, a child referred to in subsection (1) must be fastened on the booster seat using that seat belt assembly.
- (3) Despite subsection (1), if none of the available seat belt assemblies in the vehicle have an upper torso restraint, other than the driver's seat belt assembly, then a child referred to in subsection (1) must be fastened without a booster seat using a seat belt assembly with a pelvic restraint.
- (4) A child who has attained a height of 145 cm or more may continue to be fastened on a booster seat referred to in subsection (1) until, according to the manufacturer's specifications, the booster seat is no longer appropriate for the child's height and weight.

[en. B.C. Reg. 218/2007.]

## Seat belt assemblies

### 36.7

- (1) **A child who is no longer required, or permitted, to be fastened in a booster seat in accordance with section 36.06 must be fastened**
  - (a) in a seat belt assembly with an upper torso restraint and a pelvic restraint, if, other than the driver's seat belt assembly, there is one available in the vehicle, or
  - (b) in a seat belt assembly with a pelvic restraint, if, other than the driver's seat belt assembly, there is in the vehicle no available seat belt assembly with an upper torso restraint and a pelvic restraint.

[en. B.C. Reg. 218/2007.]

## Restraint systems for infants with special needs and children with mobility impairments

### 36.8

- (1) **Despite section 36.04, a child under age one who weighs less than 9 kg and who has special needs may be fastened in a vehicle using an infant restraint system for infants with special needs that is specified by the manufacturer to be appropriate for the child's height and weight.**
- (2) **Despite sections 36.05 to 36.07, a child age one or older who weighs 9 kg or more and who has mobility impairments may be fastened in a vehicle using a restraint system for disabled persons that is specified by the manufacturer to be appropriate for the child's height and weight.**

[en. B.C. Reg. 218/2007.]

## Exemptions

### 36.9

- (1) **This Division does not apply to the driver or operator**
  - (a) of a motor vehicle licensed in a jurisdiction outside Canada if the driver or operator is using an infant or child restraint system, booster seat or seat belt assembly in compliance with the laws of that jurisdiction,
  - (b) of a motor vehicle which is being operated as a taxi as defined in section 32.01,
  - (c) who is a peace officer operating the vehicle in the lawful performance of his or her duties,
  - (d) who is in possession of and produces on request to a peace officer a valid and subsisting certificate issued by a medical practitioner certifying that the child is unable for medical or physical reasons to wear or be fitted into an infant or child restraint system, booster seat or seat belt assembly, including a child who does not fit within the specifications of any manufactured infant or child restraint system or booster seat that is available for purchase,
  - (e) of a motor vehicle that was not required to have a seat belt assembly under the Motor Vehicle Safety Act (Canada) at the time the vehicle was manufactured or imported into Canada unless the vehicle was modified so that there is a seat belt assembly for an available seating position for a child,
  - (f) of an emergency vehicle, and
  - (g) of a bus, other than a bus with
    - (i) a registered model year 1994 or later, and
    - (ii) a manufacturer's gross vehicle weight rating of less than 4,536 kg.

[en. B.C. Reg. 218/2007.]

<sup>1</sup> replaced by the Motor Vehicle Restraint Systems and Booster Seats Safety Regulations, eff. May 12, 2010

## APPENDIX C

# Child Seat/Vehicle Manufacturer Contacts

### Child Seat Manufacturers:

Britax Child Safety Inc.	1-888-427-4829	<a href="http://www.britax.ca">www.britax.ca</a>
Chicco	1-800-667-8184	<a href="http://www.chicco.ca">www.chicco.ca</a>
Cosco Inc./Dorel Industries Inc.	1-800-387-2229	<a href="http://www.djusa.com">www.djusa.com</a>
Diono	1-866-954-9786	<a href="http://www.diono.com">www.diono.com</a>
Elfe Juvenile Products (Graco)	1-800-667-8184	<a href="http://www.elfe.com">www.elfe.com</a>
Evenflo Company, Inc.	1-937-773-3971	<a href="http://www.evenflo.ca">www.evenflo.ca</a>
Harmony Juvenile Products	1-877-306-1001	<a href="http://www.harmonyjuvenile.com">www.harmonyjuvenile.com</a>
Peg Perego	1-800-661-5050	<a href="http://www.pegperego.com">www.pegperego.com</a>
Clek	1-866-656-2462	<a href="http://www.clekinc.ca">www.clekinc.ca</a>
Medical Companies:		
Columbia Medical Man. Corp.	1-800-454-6612	<a href="http://www.columbiamedical.com">www.columbiamedical.com</a>
Oakhill Labron (Vancouver)	778-838-1077	
Oakhill Labron (Victoria)	1-250-370-2984	
Sammons Preston Canada Inc.	1-800-665-9200	
Sidewinders (shoulder belt retrofit)	1-888-266-2299 or 604-792-2082	

### Vehicle Manufacturers:

Acura	1-888-922-8729	
BMW (Land Rover)	1-800-567-2691	
Chrysler Canada	1-800-465-2001	
Ford Canada		1-800-565-3673
General Motors		1-800-263-3777
Honda	1-888-946-6329	
Hyundai		1-800-461-8242
Mazda	1-800-263-4680	
Mercedes-Benz		1-800-387-0100
Nissan	1-800-387-0122	
Subaru	1-905-568-4959	
Suzuki	1-905-889-2600	
Toyota	1-888-869-6828	
Volkswagen		1-800-374-8389
Volvo	1-800-663-8255	

### Transport Canada:

Technical Information	1-800-333-0510
Vancouver Area – RONA Kinetics	1-604-987-8440

(updated August 2021)





