TEACHER WARNING

This lesson **addresses statistics on car crashes and fatalities.**

This may evoke heightened emotional states due to related traumatic events that teachers, students, and/or their families may have experienced. Please see the unit front matter, the teacher reference associated with this lesson, and the callouts in the *Teacher Guide* for guidance around how to support social and emotional needs as you move through this unit. Never ask students to share their personal experiences unless they

Monday 12/2

➔We start a new unit today!

➔You can choose where you want to seat- groups of 3-4 students

Agenda

➔Grade Check In (on GC)

➔Start Unit 3

Please show this slide to students **ahead** of the first day of this unit.

Student Content Advisory

In this unit we will look at data on traffic accidents and deaths and examine the physics of car crashes in detail.

I will pass out a reference with strategies you can apply if you are feeling distress. If you need social or emotional support, please let your teacher know privately so that they can connect you to additional resources.

If at any future point in the unit you find you need support, let your teacher or a trusted adult know how you are feeling.

Be aware that your teacher and/or your classmates may have experienced trauma related to this topic. Approach conversations about car crashes and car safety with respect.

Introduce a New Phenomenon

Car crashes are a leading cause of death in the United States for people aged 1–54.

Turn and Talk

1. What makes driving so **high-risk**?
2. What **factors** can make driving safer or can make driving more risky?
3. **Whose** safety are we considering when we talk about vehicle safety? Who or what else should we take into account?

➔ Be ready to share your ideas with the class.

Engage in Mindfulness

Individual Think Time

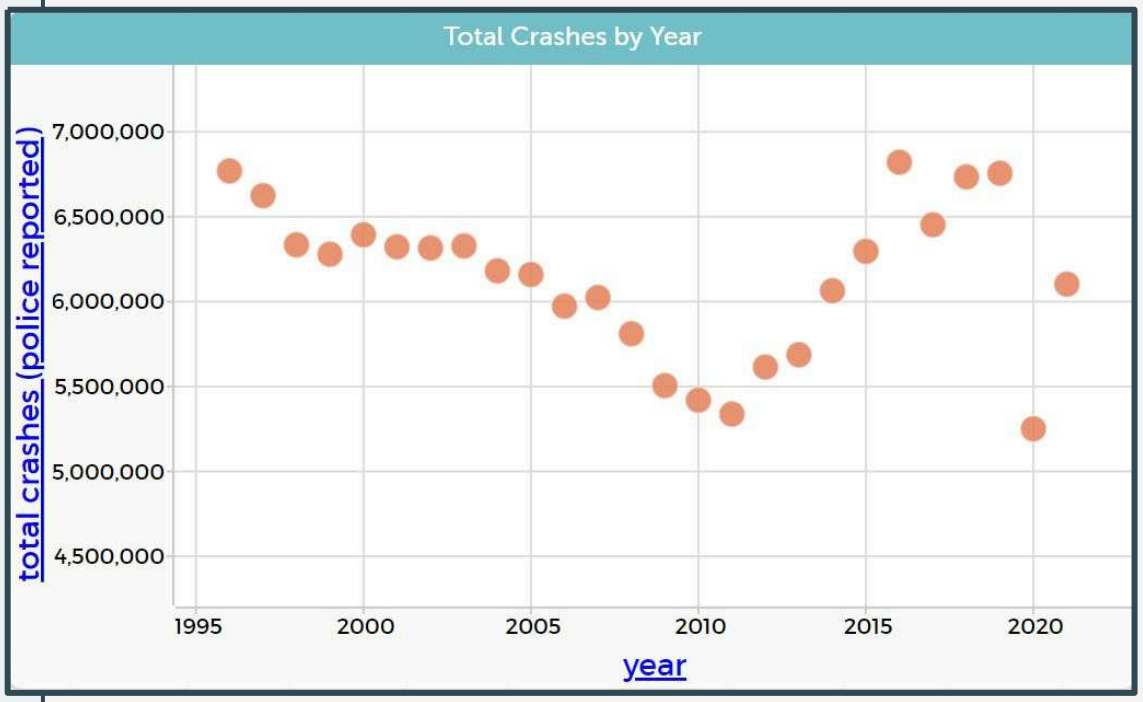
1. How does it make you feel to think about car crashes, car safety, and traffic fatalities?
2. What concerns do you have about starting a unit about car crashes and car safety?

You will **not** be asked to share your reflection, and you do not need to write it down. You will not be asked to share your personal experiences related to vehicle collisions in this unit unless you choose to do so.

Test Our Predictions

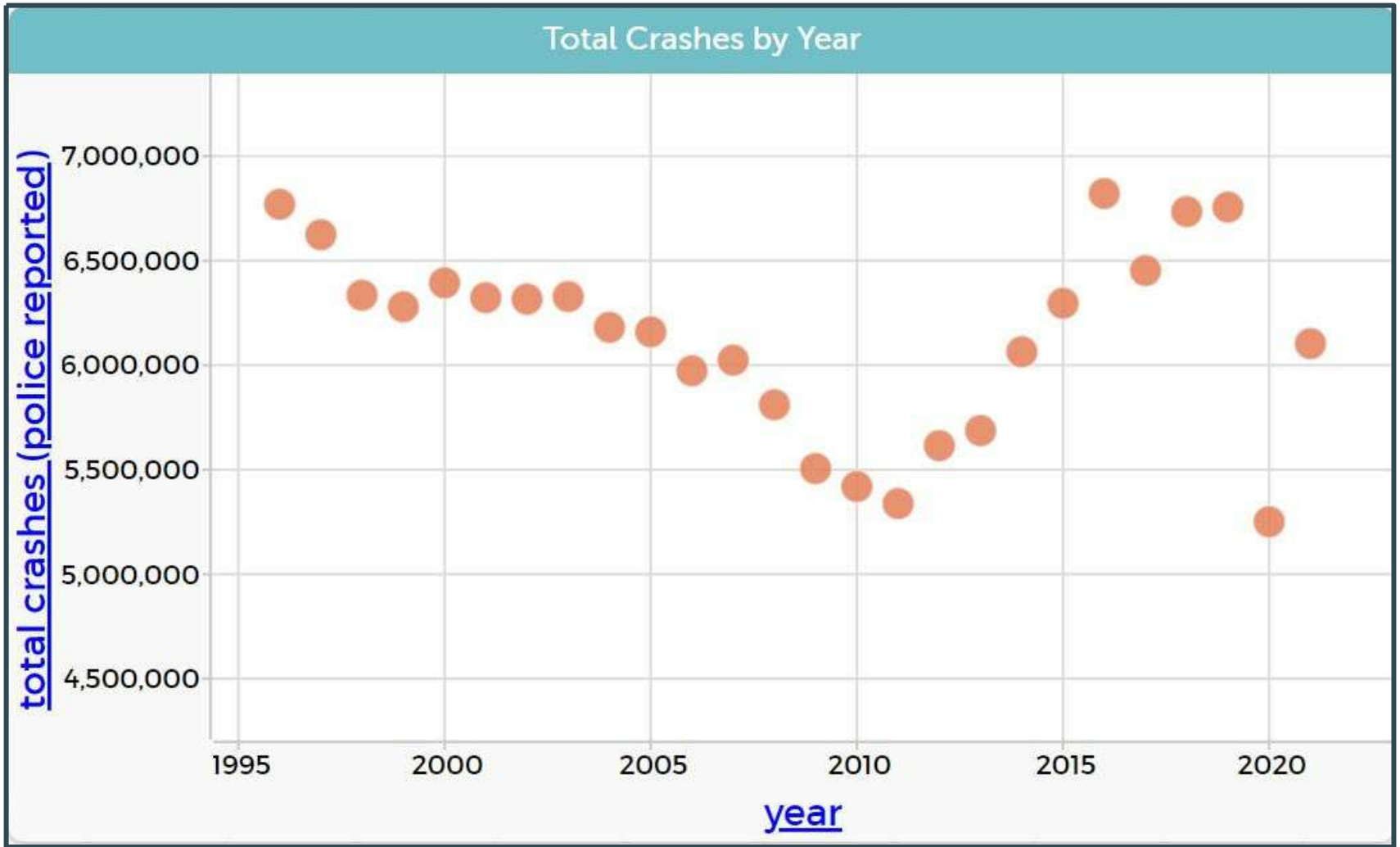
With your class

- What patterns do you notice?
- Do any of these patterns surprise you?



Generated using CODAP (https://codap.concord.org/), developed at the Concord Consortium; Data Source: NHSTA

➔ Identify 2-3 trends in the graph with your class and record them in your handout.


Total Crashes by Year
total crashes (police reported)
7,000,000
6,500,000
6,000,000
5,500,000
5,000,000
4,500,000
1995
2000
2005
2010
2015
2020
year

Vehicle Safety Timeline

In Your Notebook

What do you notice? What do you wonder?

Add in important dates to your “Total Crashes by Year” graph

1995: Congress repeals law mandating speed limits, leaving it up to states.

1998: US law requires dual front airbags in all new cars.

2003: 43 states join the Click-It-or-Ticket campaign to promote seat belt use.

2007: Steve Jobs announced the world's first iPhone; Washington state passes the first texting ban.

2016: NHTSA announces 99% of all new US cars will include emergency braking by 2022.

2020: COVID-19 pandemic

1995 2000 2005

2010 2015 2020

1985-1998: National Highway Traffic Safety Administration (NHTSA) sponsors advertising to promote seat belt use.

2004: US law encourages car manufacturers to include audible or visual reminders to wear a seat belt.

2006: First production car capable of active lane-keeping assist

2012: US law passed offers grants for states who enforce laws against distracted driving, including laws prohibiting cell phone use while driving.

Jigsaw Models

1. You will move to your Jigsaw Group
2. You and your group will share your noticings
3. Your group will make a poster based on your noticings and wonderings from your graph. This is our model for the unit.
4. Make sure that you annotate your graph.

Notice, Wonder, Investigate

Model a Collision

Model the following scenarios with the toy cars and keep track of your noticings/wonderings. Create a data table to organize your findings.

1. Head-on, one car is stopped, one car is moving before the collision
2. Head-on, both cars are moving toward each other before the collision
3. Rear-end, both cars are moving in the same direction before the collision
4. Repeat the situations with clay/tape (they stick together)

What new ideas does this bring up about the two-car system that could help explain the outcome of a collision?

Warm Up 12/6

Take out your observations yesterday from your car collisions.

- What are similarities and differences between the collisions where the cars bounce off each other and stick together?

Develop Questions for the DQB

We have considered

- data on vehicle collisions
- a timeline of vehicle design solutions and other factors
- What happens in small scale car crashes
- Experiences you have

On your own

Thinking back to what we have been doing over the past few days, what questions do you have right now?

- *Write one question on a sticky note*
- *Write in marker--big and bold.*
- *Put your initials on the front.*

Build the Driving Question Board (DQB)

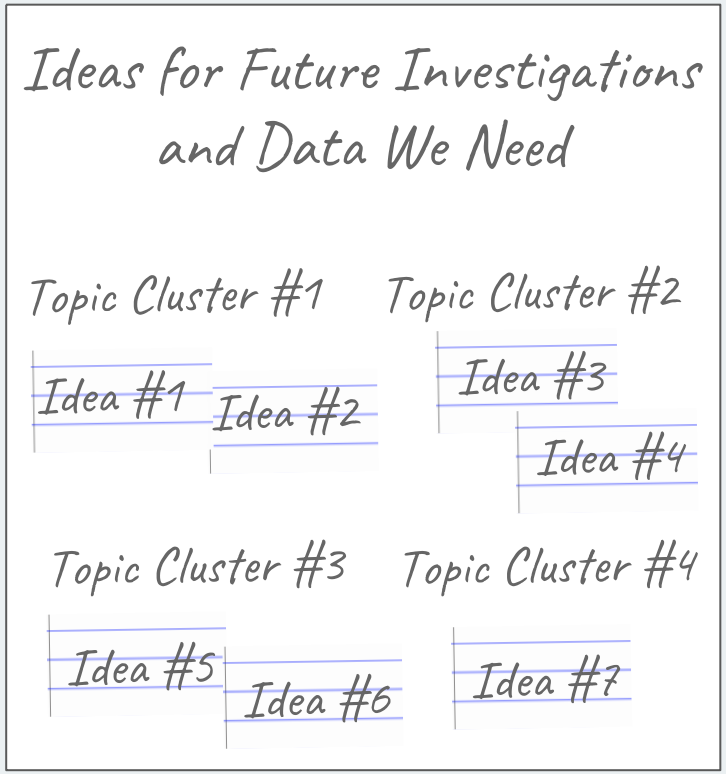
1. With your class, gather around the DQB.
2. Choose a volunteer to go first. This student reads their question and then sticks it onto the DQB.
3. Raise your hand if you have a question that is similar or the same. The first person calls on the next person, who reads their question, says how it relates, and then sticks it onto the DQB near the first sticky.
4. Repeat step 2 until all similar questions in the room are stuck to the DQB.
5. Another student reads a new, unrelated question. Continue until everyone has at least one sticky on the DQB.
6. Choose a title for the DQB.

Ideas for Future Investigations

On your own

What data or investigations might we need to help answer our questions *and* inform possible solutions?

Record ideas on stickies. Be ready to add them to a class chart under the cluster title.



➔ Be ready to place your stickies on the poster.

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