



CAN YOU REALLY CLAIM THAT?

SCIENCE ACTIVITIES

Session 1 Reader's Theater	2–3
Session 2 Speaking Scientifically	4–5
Session 3 In the Lab	6–7
Session 4 Meeting of the Minds	8
Session 5 Writing	9–10

SUPPLEMENTARY ACTIVITIES FOR OTHER CONTENT AREAS

ELA Is skateboarding only for kids in the 'burbs?	11
Math Lincoln Middle School Skateboarding Club	12
Social Studies Historical Perspective on Standardized Tests	13

FOCUS WORDS

Examining the Focus Words Closely	14
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Reader's Theater

Safety at the Skateboard Park

Setting: Gabriella, Jamal, and Hector were cutting through the park on their way home from school. In the middle of the park was a construction site where a large hole had been dug in the ground. There were piles of dirt everywhere and a sign that read: SKATEBOARD PARK COMING SOON!

Jamal: I wish they would hurry up with the ramps. My cousin gave me his skateboard, and I'm dying to try it on some serious ramps. I hope they're really steep so I can do tricks.

Gabriella: Not me! I just learned how to skateboard. A steep ramp would make me nervous.

Jamal: No way! The steeper the ramp, the faster you go! Fast is just more fun, it's not more dangerous. Actually, if I try to do my tricks on a ramp that's not steep enough, that's when I fall and get hurt.

*Hector thought about this and wondered if Jamal had any **evidence** to support his **claim**.*

Hector: Last summer I went down a steep ramp and I fell and broke my arm. I was going way too fast.

Jamal: Maybe you're just a bad skateboarder. You can't say that steep ramps are bad just because one person got hurt.

Gabriella: The idea of a really steep ramp makes me nervous, but Jamal has a point. Has anyone actually tested to see if steeper ramps cause more accidents?

Hector: Why do you need a test? I know that if I go down a steep ramp, by the end, I feel like I'm going very fast. The faster I go, the harder I'm going to crash into something if I fall at the end.

Jamal: Hector, you're not getting my point. You can't **interpret** more speed to mean more danger. For someone like me who does tricks, slow messes me up and can cause me to get hurt.

*Gabriella agreed with Hector. But she also thought it was **plausible** that steeper ramps just felt more dangerous but didn't cause more accidents.*

Gabriella: I could believe that going faster at the end would make you crash harder. But maybe Jamal is right. Maybe steep ramps aren't really that dangerous. I think that people who build these parks should test different ramps to see how often kids get hurt on them. The **results** might tell you if the ramp was dangerous.

Hector: I guess that would make sense. If you saw a **pattern** in the **results** where more people got hurt on steeper ramps then you would know they were a bad idea.

Gabriella: Maybe there should be all different kinds of ramps so kids can choose. If you're good and want to do tricks like Jamal, you could choose a steep ramp. If you're like me, you can choose one that's not steep.

Hector: But last summer I chose a steep ramp. I didn't know I would break my arm. I didn't get to play baseball or go swimming for my whole summer vacation. I was miserable. Companies that build ramps should have to test how dangerous they are. A little steep might be okay. But if it's too steep, you don't realize how fast you'll go and how hard you'll hit when you fall.

Jamal: Skateboarding is just like any other sport. You might get hurt, but that's that chance you take. I'm with Gabby. Let people make their own choices.

*Hector disagreed. He thought the **evidence** would show that steep ramps were dangerous. He decided he'd look into the **evidence** before he continued his argument with Jamal.*

Companies make **claims** all the time about their products. They say things like, "Our diet will help you lose weight." However, it is important not to make a **claim** unless there is enough **evidence** to support the **claim**. In science, we do experiments and collect data. We can then look at our **results** and **interpret** them. We might look for **patterns** in our data to see if we can support a certain **claim**.

Reader's Theater

Identifying Perspectives

1. What does Gabriella think the skateboard park builder should do so that everyone is happy?
 - a. They should not allow bad skateboarders into the park.
 - b. They should make steep ramps, but put warning signs on them.
 - c. They should survey skateboarders to see what they think.
 - d. They should put in large ramps and small ramps so that people can choose.

2. Why does Jamal **claim** that steep ramps are not dangerous?
 - a. He thinks Hector is a bad skateboarder.
 - b. He read a skateboarding study.
 - c. He only falls when the ramp is not steep enough to do tricks.
 - d. He has never seen anyone fall on a steep ramp.

3. What kind of **evidence** does Hector think will support his **claim**?
 - a. **Results** from a study that show a **pattern** of people getting hurt on steep ramps.
 - b. Data that show that skateboarding is more dangerous than biking.
 - c. Stories from people falling on steep ramps.
 - d. Skateboarding down steep ramps himself to see what happens.

For discussion:

- Do you agree with Jamal or Hector's **claim**? Why?
- How do you think you could design an experiment that might test Hector's **claim** that steep ramps are dangerous?
- Why is it important to have **evidence** to support a **claim**?

Speaking Scientifically

Examining Claims

People make many different kinds of statements they consider to be **claims**. Read some below and check the box you think is most appropriate. Then answer the question to the right. The first one has been done for you.

	<i>I think that this is a plausible claim. I believe it could be backed up with evidence.</i>	<i>I think that this is a false claim. Evidence could be used to show it is wrong.</i>	<i>This is not really a scientific claim. It's more like an opinion.</i>	<i>Why did you select the box you did?</i>
<p>EXAMPLE</p> <p>→ Labradors are the most popular dog to have as a pet.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Even though I personally do not like this breed, I did look on two websites and it showed labs as #1 in the U.S.
→ All dogs are brown.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
→ Some dogs can jump as high as three feet in the air.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
→ Dogs are the best pets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
→ Skateboards can go as fast as 10 miles per hour.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
→ Skateboarding is more dangerous than biking.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
→ Skateboards are better than bicycles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Speaking Scientifically

Supporting Claims

CHALLENGE:

Use statistics to support your responses to **Claim #1** and **Claim #2** below.

Claim #1:

➔ **More people get injured from skateboarding than from any other sport.**

Is there **evidence** to support this **claim**? Why or why not?

Can you think of reasons why someone would not agree with this **claim**?

Participant Injury Rates for Selected Sports (Injuries per thousand participants)

Basketball	21.2
Football	20.7
Bicycling	11.5
Snowboarding	11.2
Skateboarding	8.9
In-line Skating	3.9

Source: NEISS and NSGA

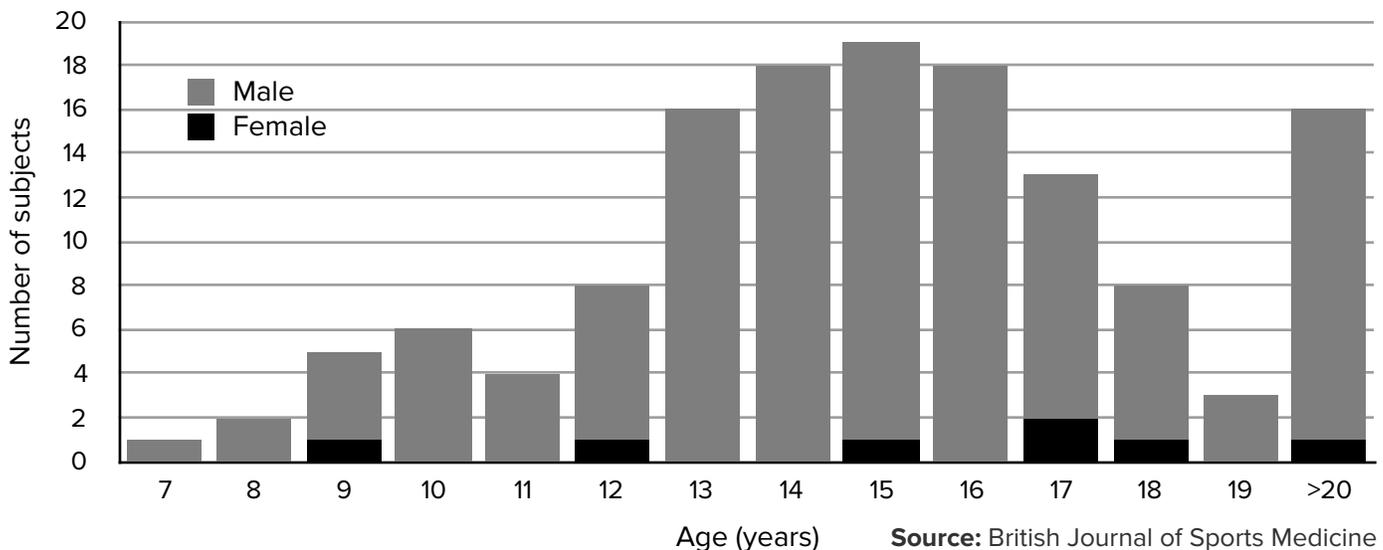
Claim #2:

➔ **More males get injured skateboarding than females.**

Is there **evidence** to support this **claim**? Why or why not?

Can you think of reasons why someone would not agree with this **claim**?

Number of Skateboarding Injuries by Age and Gender



In the Lab

Test this claim:

A steeper ramp would mean a greater impact during a crash.



You will make a model to help you determine how the steepness of a ramp would affect a skateboarder’s impact if he or she crashed. You will roll a ball down ramps of different heights and measure how far the cup at the bottom of the ramp gets pushed when the impact occurs. If the cup goes farther, there is a greater impact.

Materials each team will need:

- three books
- ruler for making a ramp (the kind with a groove in the middle is best)
- ruler for measuring book stacks and cup movement
- small ball
- styrofoam cup with an opening cut into it for the rolling ball to enter

Procedure:

1. Set up your ramp and cup as shown in the first picture in the data table below. Start by putting one book under the ruler.
2. Measure the height of the book or stack of books for each condition. Record this in your data table.
3. Hold the ball at the top of the ramp.
4. Let go of the ball and let it roll down the ramp to hit the cup.
5. Measure how far the cup moved because of the impact. Record this measurement in your data table.
6. Roll the ball down the ramp three times for each condition. Each of these rolls is a “trial.” Average the measurements you recorded for the three trials in each condition.

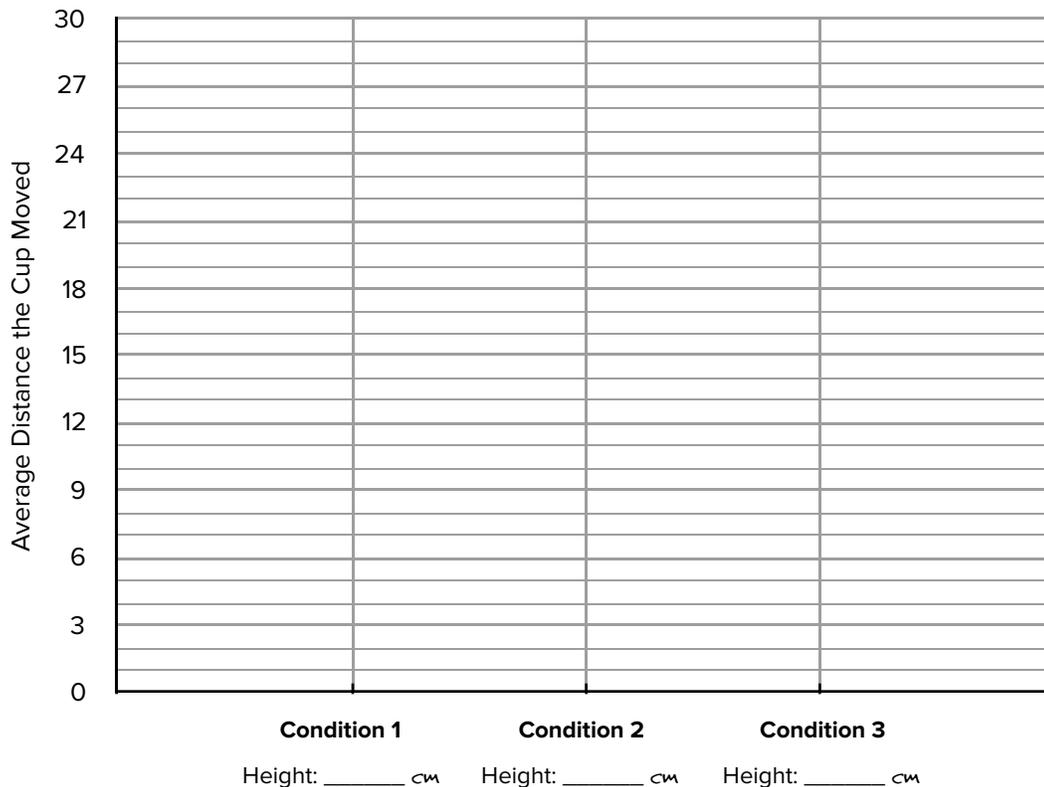
		Trial #1 distance the cup moved	Trial #2 distance the cup moved	Trial #3 distance the cup moved	Average
	Condition 1 (ramp made with one book) height: _____ cm	_____ cm	_____ cm	_____ cm	_____ cm
	Condition 2 (ramp made with two books) height: _____ cm	_____ cm	_____ cm	_____ cm	_____ cm
	Condition 3 (ramp made with three books) height: _____ cm	_____ cm	_____ cm	_____ cm	_____ cm

In the Lab

Graph your **results**, and look for **patterns** in your data.

Add the height of the book stack to the labels on the *x-axis* (\longrightarrow).

Use the *y-axis* (\uparrow) to enter your data about how far the cup moved.



Interpret your data:

What can you learn from your data? What **claim** can you make about the effect of the steepness of the ramp on the speed of the ball? What is your **evidence** for this **claim**?

Good **claim** starters:

I claim that...

The pattern is...

My data show that...

Other things to think about:

- What else might change the speed of the ball?
- How could you test these factors?

Meeting of the Minds**To bring:**

- Your completed graph
- Your **claim** statement
- Evidence** for why you made your **claim**

To think about:

- * How did you **interpret** your data? Did the steepness of the ramp affect the distance the cup traveled?
- * Do you have enough **evidence** to support your **claim**? Are there any problems with the data you collected?
- * Do other groups have different **claims**? Are some **claims** stronger than others?

Notes from Meeting of the Minds:

Is skateboarding only for kids in the 'burbs?



*They would push, till they couldn't skate no more
Office building lobbies wasn't safe no more
And it wasn't like they wasn't getting chased no more
Just the freedom was better than breathing they said
And the skate route they used to escape out
When things got crazy they needed to break out*

*They'd head to any place with stairs
Any good grinds, the world was theirs,
And they four wheels would take them there
Till the cops came and said, "There's no skating here"*

*And so they kick push, kick push
Kick push, kick push, coast
And away they roll
Just rebels without a cause with no place to go*

– excerpt from "Kick, Push" by Lupe Fiasco



"You see a lot of people who want to do it but are afraid to because of their ethnicity."

– A.J., from "The State of Black Skate"



Skateboarding, originally called "sidewalk surfing," was invented back in the 1950s by California surfers. They put wheels onto surfboard-shaped planks so they could practice surfing even

when there were no good waves. Since that time, most people think of skateboarding as something that kids in the suburbs do, not kids in the city. For example, two recent TV shows, *The Life of Ryan* and *Rob & Big*, focus on the lives of wealthy skaters who live in mansions. This is the stereotype that many people think of when they think of skaters.

As a **result**, kids who live in the city and like to skateboard are often made fun of and rejected by their peers. They often feel pressure to play sports that are more accepted in big cities, like football or basketball. Should kids have to give up something they love to fit in because their friends **interpret** skateboarding as a sport for kids in the suburbs? Is there even any **evidence** to support this interpretation, or is this just an unfair stereotype?

Skateboarding is one of the fastest growing sports in the country. Some people **claim** that skateboarding is growing the fastest among kids

living in big cities. They see a **pattern** of new skate parks being built in big cities like Los Angeles, Kansas City, and New York City over the past few years. Professional skateboarders like Rob Dyrdek and Tony Hawk are raising money to build more than 300 new skate parks in cities around the country. It is **plausible** that many more kids from the inner city will skate as a **result** of these new parks being built.

Hip-hop artists like Lupe Fiasco and Pharrell Williams skateboard, write songs about skateboarding, and design shoes and clothing for skateboarders. Many people **claim** that Lupe and Pharrell have made it cool for kids in the city to get into skateboarding. However, many of these kids say that people give them strange looks or rag on them because they enjoy a sport that only kids in the suburbs are supposed to like. For example, teenager Elijah from Brooklyn, NY, says: "My own flesh and blood called me a sellout because I skateboard." As a **result**, kids like Elijah often feel pressure to give up skateboarding.

What do you think? Should teens like Elijah quit skateboarding to be more like their friends? Or should they do what they love even if their friends see it as selling out?

Mini-Glossary

Stereotype – widely held belief about an entire group, which is often untrue or unfair

My own flesh and blood – people who are part of your family

Sellout – a person who isn't loyal to his or her roots or values

Lincoln Middle School Skateboarding Club

Sixth graders at Lincoln Middle School were really excited about starting a skateboarding club, but they were worried about having enough money to buy skateboards. One student **claimed** that they could get a group rate if they all bought skateboards together. A second student said that it was **plausible** that if they got a good discount, this would **result** in them having enough money to all buy really cool helmets too!

**Option 1**

One skateboard shop owner agreed to sell the students seven skateboards for \$455. The regular price for a skateboard is \$70. How much will they save as a group by buying the skateboards together?

- A) \$20
- B) \$385
- C) \$35
- D) \$155

Option 2

A skateboard shop down the street will not do a group discount, but they are running a big sale. They are offering 25% off a \$120 skateboard. What is the final price of each skateboard?

DISCUSSION QUESTION

Buying a skateboard is expensive, and so is building a skateboard park. Some towns that have skateboard parks want to charge a fee for people to use the parks. They say that it costs a lot of money to keep skate parks safe. These towns **claim** that if people don't pay, they will not have enough money to fix things in the parks and they could become dangerous. Some people argue that these towns are just trying to make money and that there isn't any **evidence** for needing to maintain a skateboard park. Do you think towns should charge money for people to use skateboard parks? Why or why not? Who should pay to keep these parks safe?

Historical Perspective on Standardized Tests



Each spring, millions of students across the U.S. spend several days bubbling in the answers to their state tests. The **results** of these tests are mostly used as **evidence** that a school is or isn't doing a good job teaching kids. If there is **pattern** over a few years that shows many kids aren't learning, the school is forced to make changes in what and how they teach.

How can someone **claim** that you did or didn't learn anything based on a single exam? In fact, who came up with the idea that it was important to measure what a person knows or doesn't know through an exam?

Formal education didn't always require students to take written tests or answer multiple-choice questions. In fact, in ancient Greece, teachers and students had discussions about many topics. Students learned by having a dialogue with the teacher. No testing was needed because the teachers didn't necessarily believe that there were any right answers. Teachers just wanted to make sure that their students used reason to support their answers.

For centuries, formal schooling was only for the boys of wealthy families. Tests usually came in the form of essays where students could prove that their answers were **plausible**, if not exactly what the teacher had in mind.

It wasn't until the 19th century when working- and middle-class families moved from farms into cities that other boys were able to go to school. Because of this growing population of school-age boys, there was a need for a faster and more efficient way to decide which boys should be educated to be professors and lawyers and which boys should be trained for other jobs. This is when standardized tests with right and wrong answers came to exist.

As girls began to be formally educated and more boys were being prepared for college, tests like the SAT and ACT were created to help colleges and universities determine who were the best students for admission to their schools. At the same time and using the same technology, schools across the U.S. began testing younger students in order to see if they needed additional support or a more challenging curriculum depending on the test **results**. Today, some students spend as many as 18 school days taking standardized tests.

Do you think that a single test can show what you know or don't know? Do you think a student should be given extra support or more challenging work based on the **results** of a test? Do you think that our tests should be more like the Greeks that allow students to explain their **claims** with reason and **evidence**?

But what about the girls? As girls were allowed to go to school, they were discouraged from going to college because it would require too much thinking. Some scientists **claimed** that because women's reproductive system required more energy than their male counterparts, they would get sick if they studied too much! Prior to this, people **claimed** that because women have smaller skulls than men, they did not have the mental capacity to keep up with men. Both of these **claims** were proven to be untrue and today, women surpass men in college attendance.

Examining the Focus Words Closely

SciGen Unit 6.3

*Focus Word and Definition**Example of Use*▶ **claim**

noun – a statement that needs to be supported by evidence

verb – to state something that needs proof

in Spanish: reclamación or reclamar

Jay-Z **claims** in many of his songs that he’s “the greatest rapper alive.” Do you agree with his **claim**?

▶ **evidence**

noun – facts or proof that something is true

In science, **evidence** is the data collected from experiments.

in Spanish: evidencia

Evidence from scientific experiments shows that smoking can cause cancer.

▶ **plausible**

adjective – believable, likely to be true

in Spanish: plausible (same spelling as English)

Yang’s story that she broke her arm climbing over a fence seemed **plausible**.

▶ **result**

noun – something that happens because it was caused by something else

verb – to happen because of something else

In science, a **result** is the outcome of an experiment.

in Spanish: resultado

Michael studied hard for the test; as a **result**, he got a 97%!

▶ **pattern**

noun – something that happens repeatedly in the same way

In science, a **pattern** is when you get results that follow the same rule each time you do a test.

in Spanish: patrón

The ice cream store owner noticed a **pattern**: the hotter the weather, the higher his sales.

▶ **interpret**

verb – to draw a conclusion based on what you see

In science, we **interpret** the results, or data.

in Spanish: interpretar

The doctors **interpreted** the test results from the patient and decided that she was well enough to go home from the hospital.