MYTHBUSTERS:

A 3RD - 5TH GRADE WORKSHOP

STEAM

KidLit Grove

MYTHBUSTERS
INVESTIGATING TRUTH THROUGH EVIDENCE

This lesson was inspired by the themes and educational content in:
Thomas Jefferson's Battle For Science: Bias, Truth, and a Mighty Moose
by Beth Anderson, Illustrated by Jeremy Holmes
Educators are encouraged to obtain a copy of the book to support classroom instruction.

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MYTHBUSTERS
INVESTIGATING TRUTH THROUGH EVIDENCE

GRADE LEVEL
3rd - 5th Grade

SUBJECT AREAS
Science, Literacy, Math, STEAM Inquiry

TIME REQUIRED
25-30 minutes

STEAM FOCUS
SCIENCE: planning and testing investigations to collect and analyze evidence
TECH/ENGINEERING: designing fair tests and adjusting methods to improve accuracy
ART: recording data and results in creative, visual ways (charts, sketches, diagrams)
MATH: measuring, timing, or counting outcomes to compare results
LITERACY: discussing findings, drawing conclusions, and seperating fact from opinion through evidence

SET-UP TIPS
- Create stations labeled by claim (e.g., "Feather vs. Rock Weight," "Fastest Object").
- Test each myth briefly beforehand so you know the expected outcome.
- Provide towels or trays for wet stations.

OVERVIEW
In this inquiry-driven workshop, students become the investigators — testing classroom "claims' to discover what's true and what's myth. Using hands-on experiments, students learn how scientists seperate fact from opinion by gathering evidence, measuring outcomes, and making claims supported by data. This quick, engaging workshop empowers students to think critically, question information, and use fair testing to uncover the truth behind everyday ideas.

LEARNING OBJECTIVES
Students will…
- distinguish between fact and opinion by evaluating real-world claims through measurement and evidence.
- plan and conduct a fair test, identifying variables and controls.
- record and analyze data using multiple trials to look for patterns.
- communicate their conclusions clearly, using scientific reasoning.
- reflect on the role of evidence in decision-making, connecting science practices to everyday thinking.

STANDARDS
COMMON CORE STATE STANDARDS (CCSS)
- **ELA-LITERACY.W.3.2:** write informative texts to examine a topic and convey ideas clearly.
- **MATH.CONTENT.MD.B.3:** represent and interpret data using graphs.

NEXT GENERATION SCIENCE STANDARDS (NGSS)
- **3-5-ETS1-2:** generate and compare multiple solutions to a problem based on how well each meets the criteria and constraints of the design task.
- **3-5-ETS1-3:** plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

MATERIALS
- *Silly Claim Cards,* printed and cut (or teacher-provided myths)
- Small objects to test weight, strength, floating, or rolling
- Bowls of water (if testing sink/float myth)
- *Claim Data Recording* Worksheet, printed
- Scales, rulers, timers (depending on the claim)

BOOK READ-ALOUD + INTRODUCE CHALLENGE

READ *THOMAS JEFFERSON'S BATTLE FOR SCIENCE: BIAS, TRUTH, AND A MIGHTY MOOSE* BY BETH ANDERSON AND JEREMY HOLMES.

- **After reading, revisit:** "Did he use faulty facts? Did he pick and choose evidence to fit his own beliefs?"
  - **Ask students:**
    - *Have you ever heard someone say something that sounded true…but you weren't sure?*
    - *How do scientists figure out what is true?*
- **Explain to students:** for this lesson, they will become mythbusters! They will test claims using real evidence and decide what is fact, and what is a myth.

WARM-UP TO WORKSHOP

WRITE A FEW "SILLY" CLAIMS ON THE BOARD

- **Examples may be** (use the *Claim Cards* included)**:**
  - Chocolate makes you run faster.
  - Plants grow faster if you play music for them.
  - If you talk to ice cubes, they'll melt faster.
- **Ask students:**
  - How could we test if these claims are true?
  - What would we need to measure?
  - What should stay the same in these tests? What should change?
- **Introduce vocabulary:**
  - **Claim:** a statement that declares something to be true.
  - **Evidence:** proof that helps show something is true.
  - **Variable:** what we change
  - **Control:** what stays the same
  - **Fair test:** an experiment or test where only one thing is changed (variable) at a time to ensure results are only due to that one change, and nothing else. This helps determine if a claim is correct based on evidence, rather than chance.

CHOOSE A CLAIM

PASS OUT CLAIM CARDS, OR INVITE GROUPS TO DRAW ONE

- **Students read their claim** (aloud, if preferred).
  - **Ask:** What is this claim saying? How might you test it fairly?
- **Encourage groups to identify:**
  - The **variable** (size of plane, material of object, amount of spin, etc.)
  - The **control** (same thrower, same measuring tool, same distance marker, same amount of water, etc.)
- **Provide a quick example:** If we are testing airplane size, the only thing we change is the size — not the thrower, paper type, or launch method.

TEACHER TIPS

PREP AHEAD

- Provide 6–8 mixed claim cards for variety.
- Set up 2–3 measurement stations (tape measure, balance scale, measuring cup).
- Have a basket of common test materials: paper, plastic cups, metal spoons, feathers, tape, etc.

CONTAIN THE MESS

- Use trays or table mats for building or testing.
- Mark a "Throwing Zone" for airplane tests.

ASSIGN ROLES

- Builder/Tester
- Measurer
- Recorder
- Reporter (shares results)

QUICK REFLECTION

Snap a picture of each group with their claim card and findings sheet for quick assessment later.

SHORT ON TIME?

- Pick 1–2 favorite claims for the entire class.
- Shorten to a single trial with oral conclusions.

PLAN & PREDICT

COMPLETE THE MYTHBUSTERS DATA SHEET

- **Encourage students to record:**
  - Their claim
  - Their prediction (what do YOU think will happen?)
  - The variable
  - The control
  - How many trials they will run (at least 3)
- Encourage groups to talk through their plan before testing.

TEST & RECORD

STUDENTS RUN THEIR EXPERIMENT

- **Expectations:**
  - Perform three trials
  - Measure and record carefully and accurately
  - Use the same test method each time
  - Compare the numbers — look for patterns.
- **Teacher statement examples:**
  - *Pause and check: did we change only ONE thing?*
  - *Let's measure from the same starting point each time.*
- **Students record results in the *Data Sheet*, then answer:**
  - What does your data show?
  - Did you results match your prediction?

MYTH OR FACT?

GROUPS DETERMINE: WAS THEIR CLAIM A MYTH OR A FACT?

- **Encourage students to support their answer with evidence:**
  - *Our largest airplane flew 2 feet less each time, so our claim was a myth.*
  - *The metal object sank first in all three trials, so our claim was true.*
- Invite students to share one headline finding with the class.

REFLECT & SHARE

CONNECT BACK TO THOMAS JEFFERSON

- **Jefferson believed deeply in the power of measurement and evidence.** When faced with bold claims, like de Buffon's in his Encyclopedia of the Natural World, he didn't rely on guesses or opinions. He tested, measured, compared, and questioned, using science to uncover truth.
  - **Ask students:**
    - *What did you measure or test today?*
    - *How did your evidence help you decide what was true?*
- Have students complete a quick exit slip or oral reflection.

DIFFERENTIATION

SUPPORT

- Use a single claim for the whole class to test together.
- Pre-read claim cards for early readers.
- Allow oral explanations instead of written.

ENRICHMENT

- Encourage students to design their own original "classroom claims."
- Let advanced students test two variables (e.g., airplane size and throwing method) with teacher guidance.

EXTENSIONS

WRITING CONNECTION

Students create a Mini Mythbusters Booklet:

- Page 1: The Claim
- Page 2: Our Test
- Page 3: Our Data
- Page 4: Myth or Fact?

MATH CONNECTION

Graph class data to compare results across groups.

SCIENCE CONNECTION

Discuss how real scientists avoid bias and test fairly.

ADVANCED CHALLENGE

- Test more than one variable.
- Write a new claim and challenge another group to test it.
- Compare classroom results with real-world science.

MYTHBUSTER DATA SHEET

NAMES _____

OUR CLAIM:

_____

OUR PREDICTION (What do you think will happen?)

_____

_____

OUR VARIABLE (What will change.)

_____

OUR CONTROL (What will stay the same)

_____

TRIAL	WHAT HAPPENED (describe or measure)
1	
2	
3	

WHAT DOES THE EVIDENCE SHOW? (Use your data to explain what's true.)

_____

_____

_____

OUR CLAIM IS: ☐ **Myth** ☐ **Fact**

CLAIM CARDS

Big paper airplanes fly farther than small paper airplanes.	Heavier objects roll farther than lighter objects.	A pencil rolls faster than a crayon.
Spinning around makes you taller for a second.	Talking to ice makes it melt faster.	Bigger balloons travel farther than smaller ones when you let them go.
If you color a paper airplane with a crayon, it flies better.	A ball bounces higher if you drop it from your head rather than your shoulder.	Metal objects sink faster than plastic ones.

CLAIM CARDS

A bigger piece of clay floats longer/better than a smaller one.	Paper clips float because they're light.	Sponges sink when they're dry.
Salt water makes objects sink faster.	Cupping your hands makes your voice louder.	Dark paper warms faster than lighter colored paper.
You can blow up a balloon faster through a straw than with your mouth.	You can see farther when you look through a paper tube.	Adding weight to paper airplanes makes them fly farther.

MYTHBUSTER EXIT TICKET

NAME _____

What did you measure or test today?
How did your evidence help you decide what was true?

MYTHBUSTER EXIT TICKET

NAME _____

What did you measure or test today?
How did your evidence help you decide what was true?

Thank you!

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The STEAM LAB

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