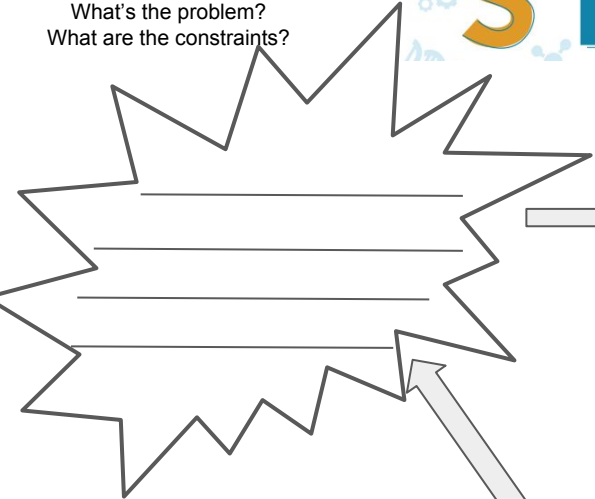


STEM CHALLENGE

ASK!

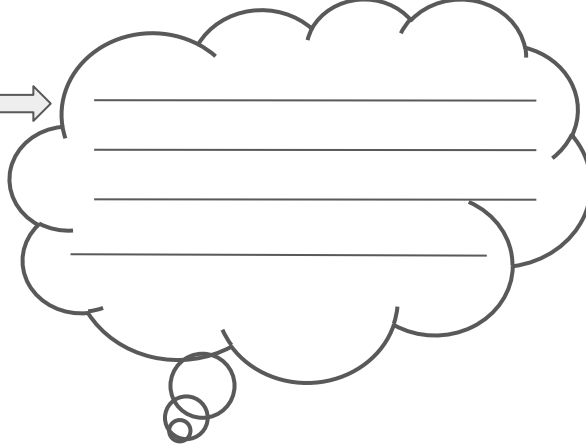
What's the problem?
What are the constraints?



A starburst-shaped box with five horizontal lines for writing.

IMAGINE!

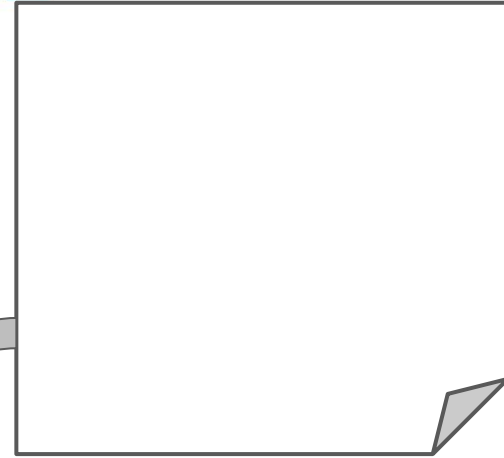
Research, Brainstorm, Develop Possible Solutions



A thought bubble-shaped box with five horizontal lines for writing.

PLAN

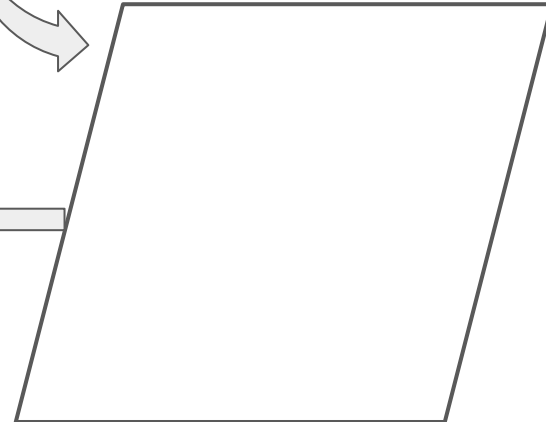
Materials, Draw



A rectangular box with a folded bottom-right corner, intended for drawing materials and plans.

CREATE and TEST

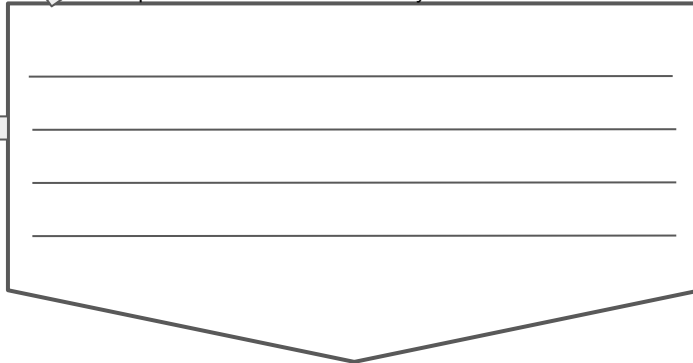
Build your prototype and try it out



A parallelogram-shaped box intended for drawing a prototype.

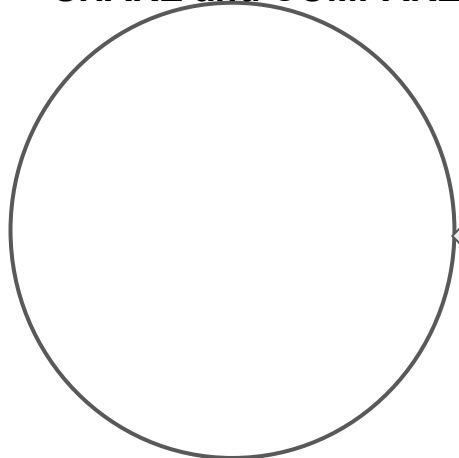
IMPROVE and Re-TEST

What problems occurred? What did you do to make it better?

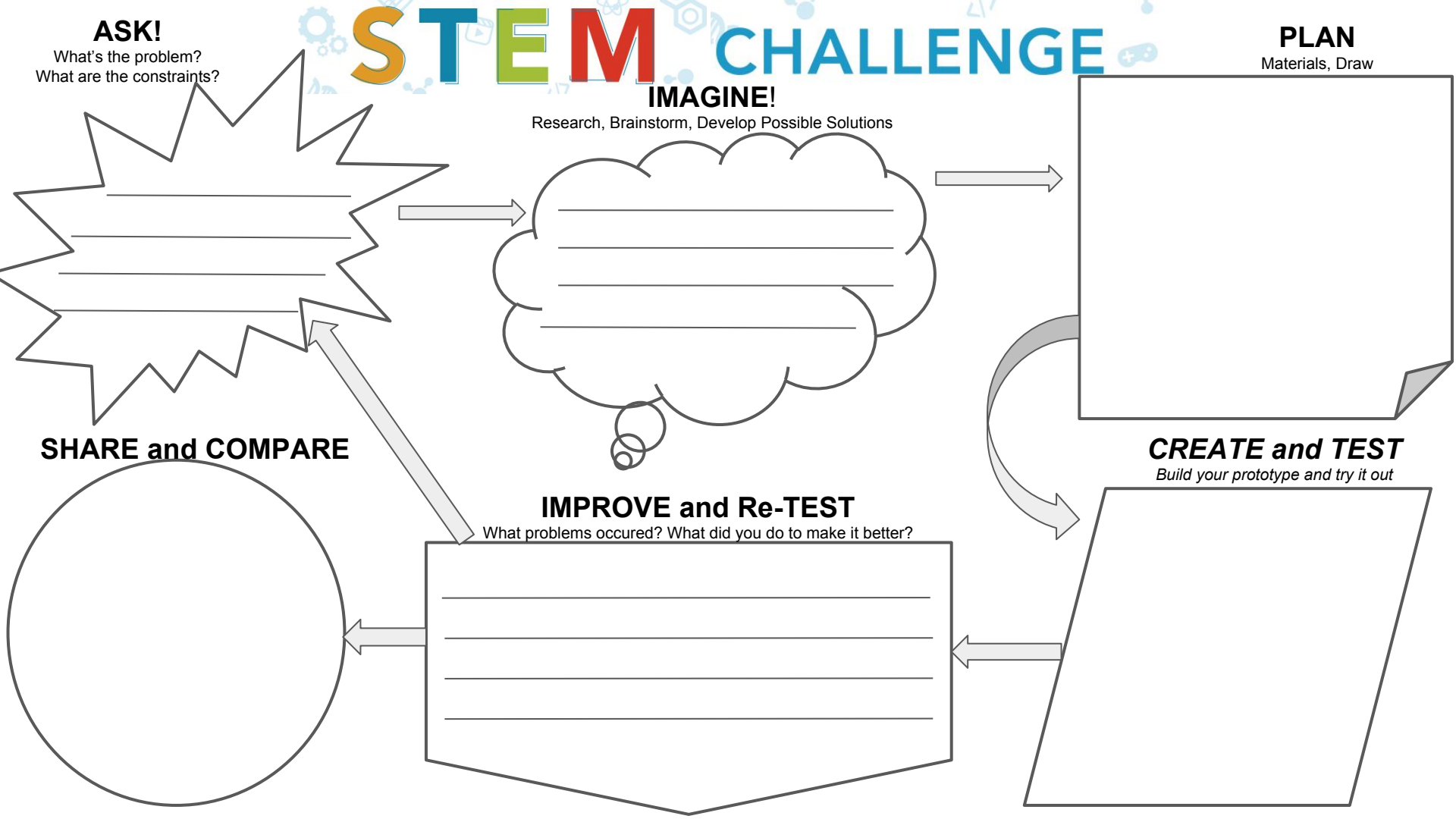


A rectangular box with five horizontal lines for writing reflections.

SHARE and COMPARE



A circular box intended for sharing and comparing results.



Have an idea?

[Tell me!](#)

Wonders Unit 1

*Red indicates
grade level
science standard

Big Idea: How can a challenge bring out our best?

Week	Essential Question	STEM Ideas for RWW	STEM Ideas for Lit Anth
Week 1	EQ: Where do good ideas come from?	Intro to engineering design process using a Mystery Engineering Challenge . Students can use the STEM challenge planning worksheet to work through their design of whichever challenge you like best.	
Week 2	EQ: How do your actions affect others?	Create your own dream job	
Week 3	*EQ: How do people respond to natural disasters? (I would make this your science unit) 4-ESS3-2	This can be done whole group or in steps in small groups. Choose between one of these: <ol style="list-style-type: none">1. Earthquake shake table and design an earthquake resistant building2. Seismic Shake Up3. Another design challenge with toothpicks and marshmallows Earthquake simulation site. Stop Disasters Game: Earthquake	
Week 4	*EQ: How can science help you understand how things work? (This could become a whole unit) 4-PS-3-1 (Force and Motion science standards come later in year)	Mystery Science Roller Coaster (need license) Design your own foam coaster or a digital roller coaster 4 day lesson Science Court Inertia (check with your science/librarian)	
Week 5	EQ: How can starting a business help others?	Research and Inquiry: Choose a business	

Have an idea?

[Tell me!](#)

Wonders Unit 2

*Red indicates
grade level
science standard

Big Idea: What can animals teach us?

Week	Essential Question	STEM Ideas for RWW	STEM Ideas for Lit Anth
Week 1	EQ: What are some messages in animal stories?	Design a device that will safely slow down the effects of gravity (parachute) to get the fisherman down without landing in the river	Design a system or code to communicate a Secret Message 4-PS4-3 . Here is a rubric .
Week 2	EQ: How do animal characters change familiar stories?	Develop a code using cardinal directions to lead Grasshopper to water on this map . To make it harder, you could have students add obstacles to make the route harder	Create own instruments out of items around the classroom for the concert
Week 3	EQ: How are living things connected? Grade 5 standard	Whole Class Activity: Food Web Yarn Game Gets a bit tangled, but kids love it Assign different ecosystems, students develop a model of different food chains in it using Google Drawings	Owl Pellet Dissection: I prefer actual ones with this lab sheet but those can be expensive , so here's a virtual one
Week 4	EQ: What helps an animal survive? 4-LS1-1 <small>Should have seen some in 3rd grade and 1st</small>	Adaptations (bird beaks) lesson Worksheet and resources	Build a spider web using this prezi , to catch an insect or halloween spider web challenge , or see the geometric math behind spiderwebs.
Week 5	EQ: How are writers inspired by animals?	Create own poems using StoryBird Must sign up through Google and set up a class. Cool poetry challenges students can create.	

Wonders Unit 3

Have an idea?

[Tell me!](#)

Big Idea: How can you show your community spirit?

*Red indicates
grade level
science standard

Week	Essential Question	STEM Ideas for RWW	STEM Ideas for Lit Anth
Week 1	EQ: How can you make new friends feel welcome?	Design a car for Harry to do rodent patrol. Or you could use legos , k'nex, recycled goods , miscellaneous items.	Design a digital story to re-tell Chester's journey on StoryboardThat! Or your own favorite site.
Week 2	EQ: In what ways can you help your community?	Create own survival kits or help boxes for those impacted by a natural disaster. Be a Better Human Challenge . I made this optional and for a reward.	
Week 3	EQ: How can one person make a difference?	Make a PSA about a problem you feel passionate about. Use flipgrid , create a video, or make an online book	
Week 4	EQ: How can words lead to change?	Using brainpop as a starting point, find and research a famous activist. Create a StoryBird or a Padlet to showcase information. Or create a fake social media profile page for that person. Make a copy first then you can edit Instagram Facebook Time Magazine *VR Headsets Google Expedition about Women's Rights	Write own message to lead change. Design a device that will let one's voice get louder or carry farther (megaphone) so that their message can reach more people when they speak it.
Week 5	EQ: In what ways can advances in science be helpful or harmful?	GMO Build your own Genetically Modified Superfood then build a model	

Have an idea?

[Tell me!](#)

Wonders Unit 4

*Red indicates
grade level
science standard

Big Idea: How do different writers treat the same topic?

Week	Essential Question	STEM Ideas for RWW	STEM Ideas for Lit Anth
Week 1	EQ: Why do we need government?	Design a campaign poster using paint, Google Drawings, or Educreations if iPads available or a campaign ad using flipgrid . Pick a stance on an issue you would like to change.	
Week 2	EQ: Why do people run for public office?	Have students create their own Google Tour Builder around D.C. highlighting the landmarks from the reading or you can use this one I made. It is very basic so you may want to have a look and have students record facts and observations as they go. Design their own specs	
Week 3	EQ: How do inventions and technology affect your life? 4-PS3-2	String Telephone , sound energy Helping Hands video and challenge on pg. 29-30	Man on the Moon Footage Have students do this lunar landing simulation (may need to enable flash)
Week 4	EQ: How do you explain what you see in the sky?	VR of space/northern lights. Google Expeditions has an Aurora Borealis Tour	Whole Group Demonstration. The ever popular Oreo Moon Phases Resource to a bunch of different moon phase activities you could do. (mostly whole group)
Week 5	EQ: How do writers look at success in different ways?	Create own poems using StoryBird Must sign up through Google and set up a class. Cool poetry challenges students can create.	

Have an idea?

[Tell me!](#)

Wonders Unit 5

*Red indicates
grade level
science standard

Big Idea: What helps you understand the world around you?

Week	Essential Question	STEM Ideas for RWW	STEM Ideas for Lit Anth
Week 1	EQ: In what ways do people show they care about each other?	Design portraits of your loved ones. Create a picture frame to give as a gift. Give lots of miscellaneous items and students have to engineer a stand alone picture frame.	
Week 2	EQ: What are some reasons people moved west?	Covered Wagon STEM Challenge . Wagon has to be able to hold the most weight without collapsing. Pack your wagon activity	Digital BreakOUT
Week 3	EQ: How can inventions solve problems? 4-PS3-2	Create own invention to solve a real problem. Some problems (fidgeting in class, pencil keeps rolling off desk, playground safety, slippery hallways, portable speaker for iPhone, pen marks on left handed kiddos when they write, etc)	Try out one of these STEM challenges to get kids thinking or Circuit Challenges (need batteries, bulbs, wires, switches) Or Snap Circuits (transforming energy)
Week 4	EQ: What can you discover when you look closely at something?	Compare “naked eye” to “magnified” using items around the room and magnifying glasses. Microscope Observation Template Digital microscopes if your school has them. Or play a Kahoot whole class	Students Create Own Water Cycle Diagram using Google Drawings Do experiments while reading (speed of the drop of dye in cold vs. hot water, condensation on a cold glass)
Week 5	EQ: How can learning about the past help you understand the present?	Archeological Tour Builder	Jamestown Fort Design Challenge

Wonders Unit 6

*Red indicates
grade level
science standard

Have an idea?

[Tell me!](#)

Big Idea: How can you build on what came before?

Week	Essential Question	STEM Ideas for RWW	STEM Ideas for Lit Anth
Week 1	EQ: How do traditions connect people?	Share your own family traditions by interviewing family members and creating a multimedia presentation. Can use this doc as a resource	Create own game of silence with your group. Figure out the rules, the goal, and how to determine a winner. Create a Native Americans in KY Map using Google Drawings and Start KY History . See Example
Week 2	EQ: Why is it important to keep a record of the past?	Students can do a little research about their name origin, where it came from, what it means, etc. using Ancestry.com and you can use this document to help them record their findings.	
Week 3	EQ: How have our energy resources changed over time? 4-PS3-4	Design Own Wind Turbines, students decide the size, shape, and material of their blades, test with a blow dryer, count rotations in 1 minute, and improve to get the most rotations in 1 minute. Make 1 blade a different color to help count. Or build a wind turbine if you have access to a small DC motor&voltmeter, if not then this one could work, Design own Rube Goldberg Machines to show energy transfer Energy Digital BreakOUT	
Week 4	EQ: What has been the role of money over time?	Lemonade Stand Game have students record their changes along the way in order to make the greatest profit. Students can also graph profits in a google sheet. Or this game on cool math that lets them control the recipe and price.	
Week 5	EQ: What shapes a person's identity?	Create your own family flag and see it move using Quiver App Where I'm from poems	