

Comparing Solutions

Standard: K-2-ETS1-3 Test two designs for the same problem and compare which works better

Use your two crayon holders: Design A and Design B.

Part A: My Two Designs

	Design A	Design B
Name		
Main material		
One way it is different		

Part B: Make It Fair

A fair test keeps everything the same except the design. Put a check next to each thing that must stay the SAME.

☐ the same 8 crayons	☐ the same book for the tilt
☐ the same table	☐ the same design

Part C: Comparison Table

Write your numbers. Then circle the better result in each row.

Test	Design A	Design B
Crayons that fit		
Crayons that fell out on the tilt		
Fits in the pencil box? (yes or no)		
Pieces that came loose after a 6-inch drop		

Part D: What the Data Shows

1. Design A is better at

2. Design B is better at

3. We recommend Design _____ because

Engineering Design Review

Standard: K-2-ETS1-1, K-2-ETS1-2, K-2-ETS1-3 Engineers ask, imagine, plan, create, and improve

Part A: Put the Steps in Order

Write 1, 2, 3, 4, or 5 to show the order of the steps. Then write the letter of what the step means.

Order	Step	Meaning
	Plan	
	Ask	
	Improve	
	Imagine	
	Create	

a. Think of lots of ideas.	b. Make it better after you test it.
c. What is the problem? Who has it?	d. Build it and test it.
e. Draw one idea and list the materials.	

Part B: My Design Path

Think about your crayon holder. Write what you did at each step.

Step	What I did
Ask	
Imagine	
Plan	
Create	
Improve	

Part C: Think About It

1. Which step would be a bad one to skip? What would go wrong?

Earth's Land & Water

Standard: 2-ESS2-2 Show where land and water are found on Earth

Part A: Globe Toss

Before you toss, make a guess. Then toss the globe 20 times. Make a tally mark for where your thumb lands.

My guess: Earth has more **land** / **water** (circle one)

	Tally marks	Total
Land		
Water		

1. What did the toss show? Most of Earth's surface is covered by

Part B: Land or Water?

Write each word under Land or Water.

mountain river lake ocean hill plain island pond valley	
Land	Water

Part C: My Pan Landscape

Draw your pan from above. Label: mountain, river, lake.

Draw arrows to show which way the water moved.

2. Water flows _____ and collects in _____ places.

Weathering & Erosion

Standard: 2-ESS1-1, 2-ESS2-1 Wind and water break down land and move it; some changes are fast, some are slow

Part A: Sugar Cube Shake

Draw the sugar cubes before shaking and after shaking.

Before	After 1 shake	After 3 shakes

Part B: Fast or Slow?

Put a check in the Fast or Slow box for each Earth change.

Earth change	Fast	Slow
a river carving a canyon		
a landslide		
a rock getting smooth in a stream		
a flood washing away a road		

Part C: Rain on a Hill

One side of the sand hill was bare. One side was covered like plants.

My prediction: Which side will lose more sand?	What happened:

Part D: What I Learned

1. Weathering is

2. Erosion is

3. Plants help the land because

Weeks 17–20: Vocabulary and Big Ideas

Standard: K-2-ETS1-3, 2-ESS2-2, 2-ESS2-1 Words for designing solutions and for Earth's land and water

Word Bank

engineer	design	fair test	compare	improve
ocean	river	mountain	weathering	erosion

Fill in the Blank

Write a word from the word bank to finish each sentence. You will not use every word.

1. An _____ solves problems by building and testing.
2. In a _____, everything stays the same except the design.
3. When we _____ two designs, we look at how they are the same and different.
4. After testing, engineers _____ the design to make it better.
5. Most of Earth is covered by the salty _____.
6. A _____ is water that flows downhill across the land.
7. When rocks bump and rub into smaller pieces, it is called _____.
8. When wind or water carries soil away, it is called _____.

Explain It

9. Our sand hill test kept the sand, the water, and the pan the same. How was it like an engineer's fair test?

Weeks 17–20: My Reflection

Standard: K-2-ETS1-3, 2-ESS2-2, 2-ESS2-1 Think about what you learned as an engineer and an Earth scientist

Read each sentence. Put a check in the box if you can do it.

☐

I can test two designs fairly and tell which works better.

☐

I can name the steps: ask, imagine, plan, create, improve.

☐

I can tell land features from water features on Earth.

☐

I can explain how wind and water change the land.

My favorite thing I learned

Draw a picture of your favorite thing from Weeks 17 to 20.

Write about your picture.
