



Science Learning Options

Choose 1 activity to do each day.



Lizards, Lizards...Everywhere! Green Anole in Hawai'i

With an 'ohana member, look at the photos and watch the video clips of the Green Anole lizard. What do you notice? What do you wonder about? What predictions can you make? Then, go outside and look for Green Anole in your backyard. Did you find one? What was it doing? Draw, color, and label a picture of your observation. After, pretend you are that Green Anole. Write a story about the adventure you had outside. If you didn't find a Green Anole, write a story based on the video clips you observed.

'Ohe (Bamboo) Wa'a (canoe) Plant

With an 'ohana member, think about what you know about 'ohe (bamboo). Record your ideas on the Circle Map. Then, read the text about 'ohe. After, write 3 new things you learned about 'ohe. Write 2 connections you made. Write 1 question you have. Research to see if you can find the answer to your question.

Mālama 'Āina (Engineering - Tomato Cage/Stake)

Why do gardeners use cages or stakes to support their tomato plants? Tomatoes grow on vines. As the fruits develop, they get heavy and pull down on the vines which can damage the tomatoes or the stems. If the tomatoes grow close to the ground slugs and other insects might cause diseases in them. What kind of cage is Kumu making for her tomato plant? Watch the video to find out. Think: What type of tomato cage would you create using bamboo? Draw and label a model. Explain what advantages your design has in supporting the tomato plant's growth.

Backyard Manu (Birds) (Introduced Manu of Hawai'i)

One of the manu Kumu has been able to kilo the Northern Cardinal, but it has been difficult. The Northern Cardinal has been elusive...it visits occasionally and not for very long. With an 'ohana member, look at the photos and watch the video clips of the Northern Cardinal in Kumu's backyard. What do you kilo? What do you wonder? What are some predictions you have? Next, read pages 14-15 in the text, [Brilliant Backyard Birds](#) (click on the title) to learn about the Northern Cardinal. Take turns discussing new learnings, connections, and wonderings you have. What was the most interesting thing you learned about Northern Cardinals. Explain.

Weather How Do Living Things Adapt to Rain?

How do some birds and plants respond to rainy weather? How have their physical traits adapted to help them to survive in wet conditions? With an 'ohana member, kilo the video clips. What did you notice about the Spotted Dove's feathers as the rain fell upon them? What behaviors did the House Sparrow display when its feathers got wet from the rain? What happened to the water when it fell on the peppers and the plant's leaves? Discuss what you observed. Then, draw and label sketches of your observations? What do you wonder now?

He'e Hōlua (Hawaiian Sledding) [Hōlua video](#)

Did you know He'e Hōlua (sliding down mountains) was an extreme sport of early Hawaiians? And, snow was not a part of He'e Hōlua! Sledding courses were engineered from large rocks, smaller stones, dirt, and pili grass or sugarcane leaves. Sleds were crafted from different native woods. 'Ohe (bamboo) was one resource used in building the sled. With an 'ohana member, click on the link, Hōlua video, to learn more about He'e Hōlua. After watching the video, scroll up to read the text to learn more about this sport. Then, make a model course and sled using natural materials you have outside (not for people to slide on - just the model sled). Test out your model to see how fast it moves. You might want to ask your 'ohana members to create their own sleds so you have someone to race against.





Lizards, Lizards, Everywhere! Green Anole in Hawai'i

With an 'ohana member, watch the video clips and look at the pictures of the Green Anole. What do you kilo? What questions do you have? What predictions can you make?





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Lizards, Lizards, Everywhere!

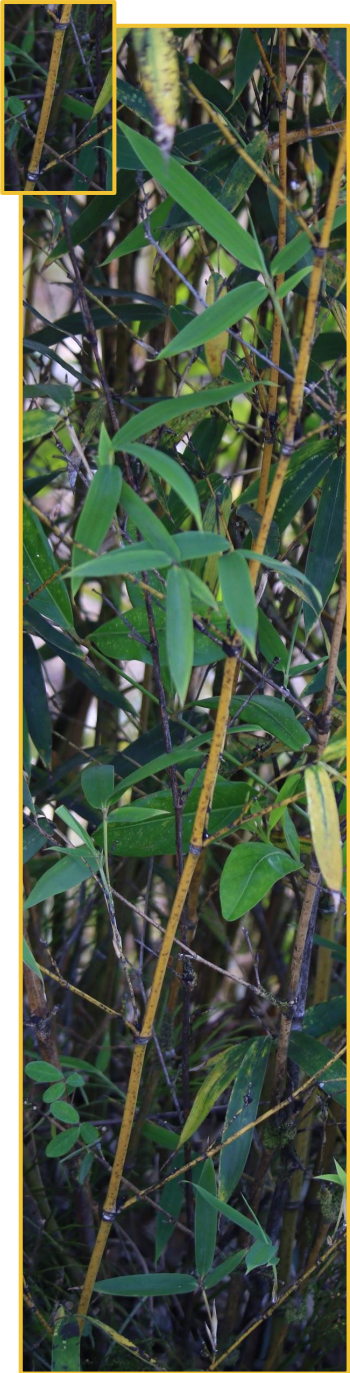
Green Anole in Hawai'i

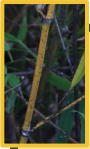
Go outside and look for Green Anole in your backyard. Draw, color, and label a picture of your observation. After, pretend you are that Green Anole. Write a story about the adventure you had outside. If you didn't find a Green Anole, write a story based on the video clips and pictures you observed. Be creative and have fun!



'Ohe (Bamboo)

What we think
we know about
'ohe (bamboo)





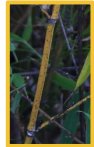
'Ohe (Bamboo)

Did you know 'ohe (bamboo) is considered a GIANT grass? In fact, 'ohe is the fastest growing woody plant on earth. There are over 1,500 different varieties of 'ohe found around the world! Humans see 'ohe as an important resource because its strong stems can be used in a variety of ways.



Each culm (stem) in this clump of 'ohe is about 7 - 9 feet tall.



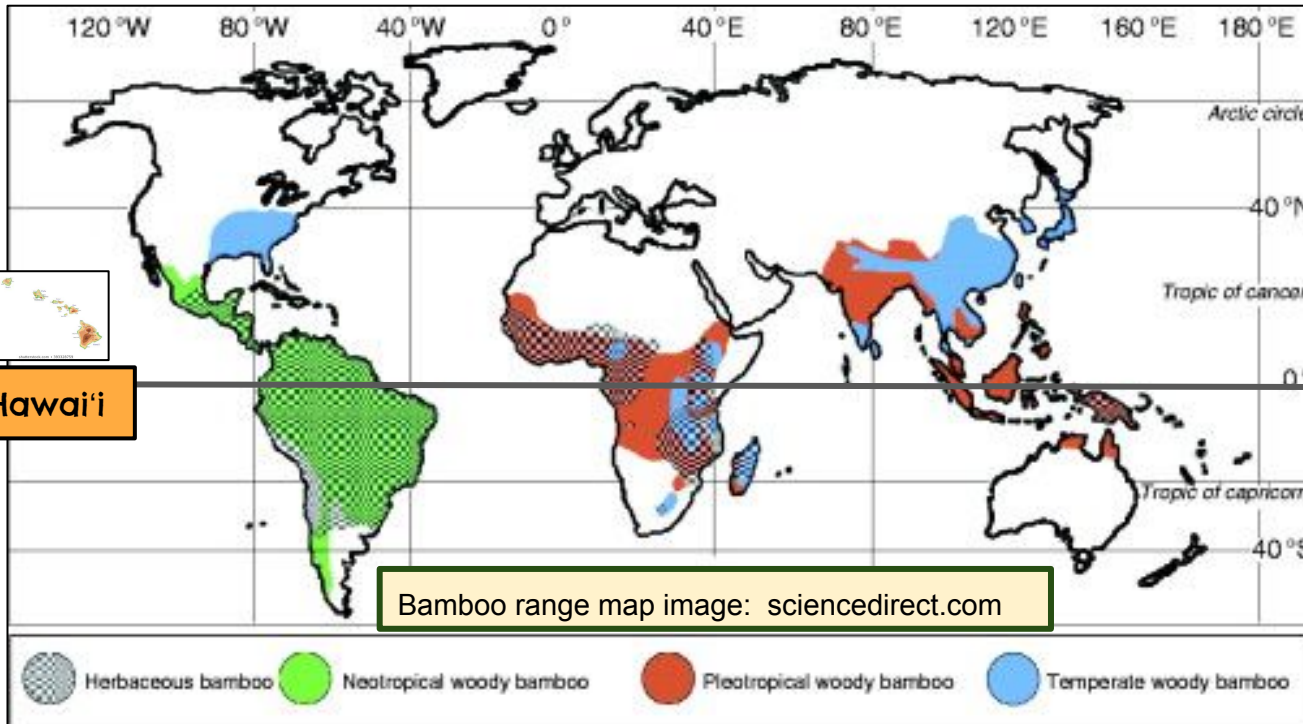
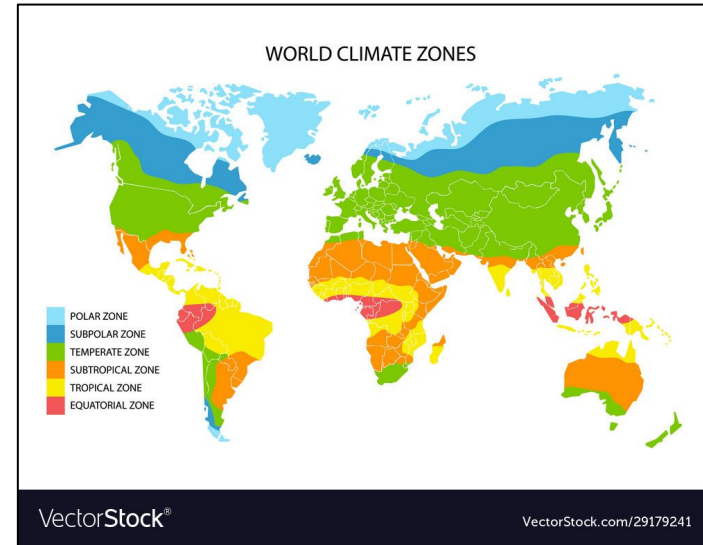


Ohe is found on 5 of earth's 7 continents. Most species of 'ohe are **native** to warm and moist tropical climates while some species of 'ohe can be found in cooler temperate climates. North America has only 3 identified native species of 'ohe while Asia has at least 400 different species of 'ohe.

Fun Fact:

'Ohe growth rate depends on...

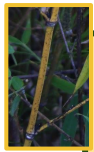
- Local soil and climatic conditions
- Species (type of 'ohe)



Hawai'i

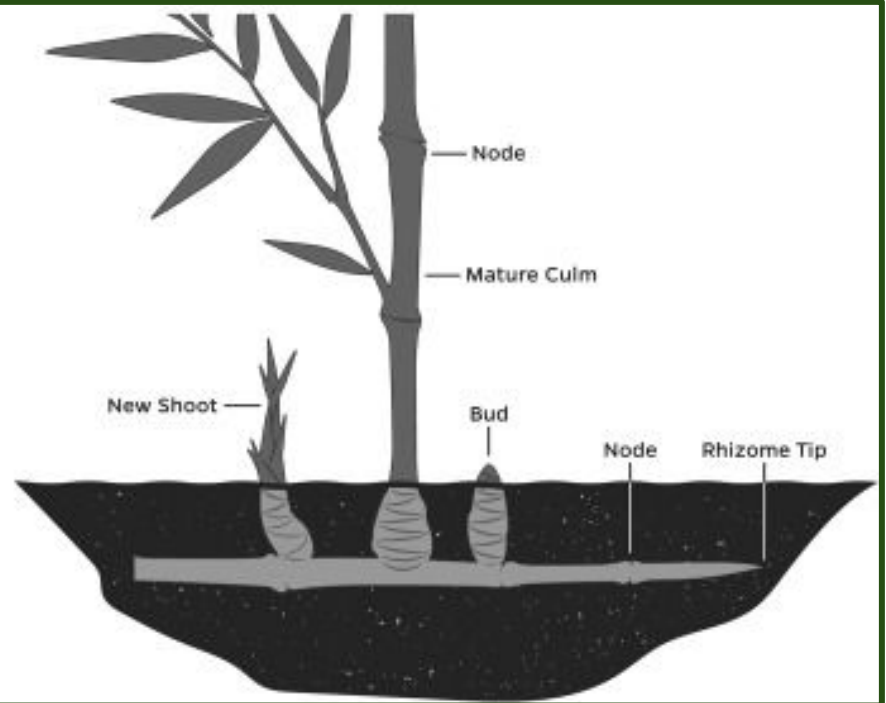
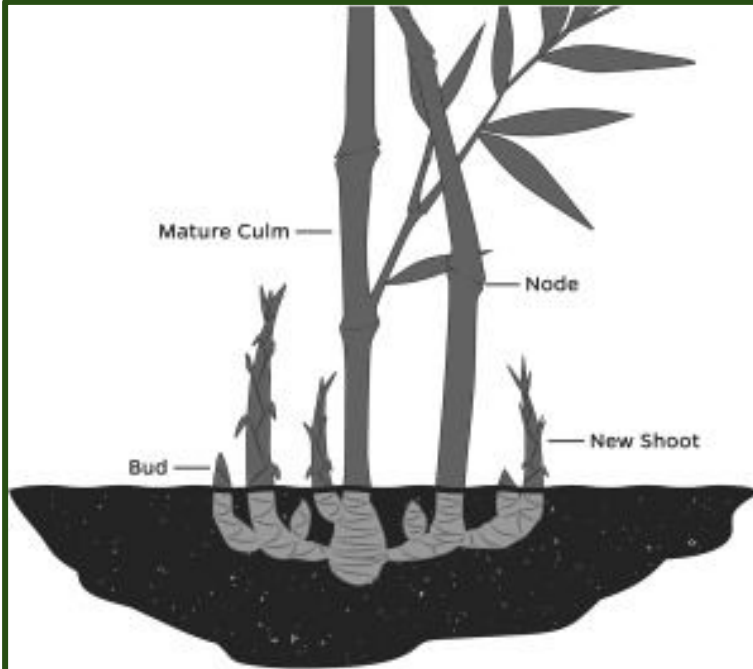
Equator
(not to scale)

Think: Why is it important to know about the climate in which you live? Why is it important to know about the different climates around the world?



'Ohe (Bamboo): Two Types

- Clumping 'Ohe
- Running 'Ohe



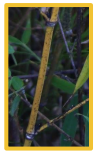
Clumping 'Ohe

- Spreads slowly
- Tends to stay in one place (where planted)

Running 'Ohe

- spreads quickly
- Spreads underground and pops up like a weed





'Ohe (Bamboo) in Hawai'i

Wa'a (canoe) plant



Painting by Herb Kane

'Ohe is believed to be one of the wa'a (canoe) plants Polynesian settlers brought from the South Pacific to Hawai'i. Early Hawaiians planted two different varieties of 'ohe... 'Ohe Hawai'i and 'Ohe Kahiki.



'Ohe (Bamboo) in Hawai'i

How are 'Ohe Hawai'i and 'Ohe Kahiki alike? How are they different? Use the information in the Double Bubble Map to compare and contrast the two types of 'ohe early Hawaiians brought to Hawai'i.

Different

Different

Same

'Ohe Hawai'i

'Ohe Kahiki



Image source: palmco.com

Image source: bishopmuseum.org

grows to heights of more than 50 feet

longer internodes

thinner walls

less hard than 'Ohe Kahiki

flat, pointed, leaves with rough undersides that can cut

thrive in warm moist areas

grow in lower wet forest zones

clumping type

long leaves

grows 9-15 feet high

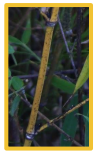
shorter internodes

thicker walls

harder than 'Ohe Hawai'i

uneven sided bases on leaves





'Ohe (Bamboo) - Hawaiian Uses

Why was 'ohe important to early Hawaiians? 'Ohe was an important resource to early Hawaiians because the 'ohe stem was used in many different ways.

'Ohe stem(s)...

- were used for water containers
- slivers (thin pieces) were used to string kukui nut kernels for candles and torches
- were made into knives and other utensils
- were made into 'ohe kāpala (carved bamboo sticks) to print kapa
- were used for light framework in house construction
- were used to make fishing poles
- Were used as part of rail framework on hōlua sleds
- were used to make musical implements
 - pū'ili
 - 'ohe pū

'ohe kapala



'ohe pū

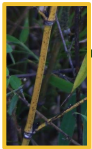


Image source: ThisWeekHawaii.com

'ohe kapala



Image source: NPS photo



'Ohe (Bamboo)

Write 3 new things you learned about 'ohe. Write 2 connections you made. Write 1 questions you have. Research to see if you can find out the answer to your question.

Three new things I learned...

- 1) _____
- 2) _____
- 3) _____

Two connections I made...

- 1) _____
- 2) _____

One question I have...

- 1) _____





Mālama 'Āina

(Engineering - Tomato Cage/Stake)

What kind of cage is Kumu making for her tomato plant? Watch the video to find out.



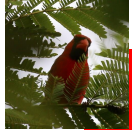


Mālama 'Āina

(Engineering - Tomato Cage/Stake)

Think: What type of tomato cage would you create using bamboo? Draw and label a model around the tomato plant. Explain what advantages your design has in supporting the tomato's growth (why is it a good design).

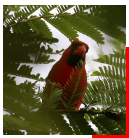




Northern Cardinal

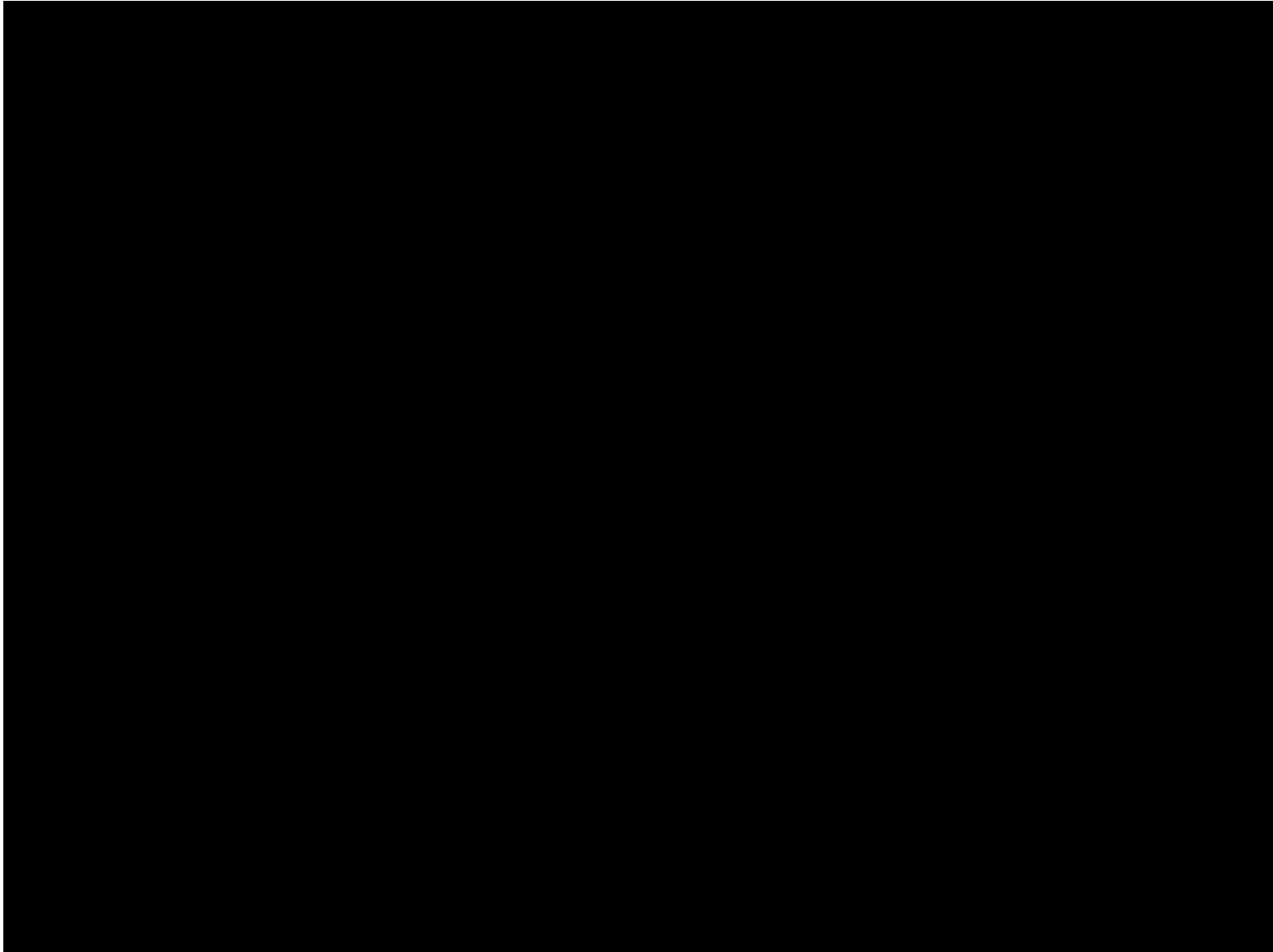
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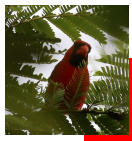




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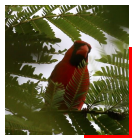




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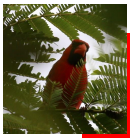




Northern Cardinal

With an 'ohana member, look at the photos and watch the video clips of the Northern Cardinal in Kumu's backyard. What do you kilo? What do you wonder? What are some predictions you have?





Northern Cardinal

What was the most interesting thing you learned about Northern Cardinals? Explain (remember to use “because” in your response).





Weather

How Do Living Things Adapt to Rain?

Watch the video clips. How do some birds and plants respond to rainy weather? How have their physical traits adapted to help them to survive in wet conditions?





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How Do Living Things Adapt to Rain?

What did you see? What did you notice about the Spotted Dove's feathers as the rain fell upon them? What behaviors did the House Sparrow display when its feathers got wet from the rain? What happened to the water when it fell on the peppers and the plant's leaves? Draw and label sketches of your observations? What do you wonder now?

Draw and label.

What do you wonder now?





He'e Hōlua Engineering

The need for speed!

Think about what you learned about he'e hōlua. With an adult 'ohana member, design and create a model sled and course. Here's your engineering task...

1. Think about the natural materials you have outside.
2. Draw models of what the sled and course will look like.
3. Label the parts.
4. Gather the materials you'll need.
5. Construct the sled and course as it appears in your model drawing.
6. With adult supervision, test it out.
 - How fast did the sled move from the start line to the finish line?

Questions to consider...

- How long and steep of a slope will you create for your course?
- Which materials (for the course and sled) will allow the sled to slide the quickest?
- How does the length and width of the sled effect its speed?
- What time of day will you test your model?

Model drawing of course.

Model drawing of sled.





Test it out.

Test 1: How fast did the sled move from the start line to finish line?

Test 2: How fast did the sled move from the start line to finish line?

Test 3: How fast did the sled move from the start line to finish line?

Think:

Were the results similar each time? Why or why not?





What worked well in the model? Explain.

One thing I will change is... (You can change 1 thing on the sled or 1 thing on the course, but you **may not** change them both. Remember to use "because" to explain your thinking).





Make the changes to your model, then retest it.

Test 1: How fast did the sled move from the start line to finish line?

Test 2: How fast did the sled move from the start line to finish line?

Test 3: How fast did the sled move from the start line to finish line?

How effective were the changes you made? Explain.

Keep trying out ways to improve your sled and course.

