

# Activity Purpose

Now that you have looked over all of the data that you've gathered through your investigations, it's time to return back to your initial models from LE 6.B.1 to see what you've learned, what else you need to learn more about, and if you're ready to take action. Working with models helps scientists and science learners visualize their thinking and better understand the kinds, relationships, behaviors, and various scales being explored. Scientific models are dynamic and change based on new information learned through investigations of phenomena, discussions and deliberations with others like family and community, and media of various types.

# **Activity Overview**

This activity has 2 parts.

- » **Part 1 :** Return back to your initial model from LE 6.B.1. What relationships did you draw in that model? What relationships have you learned more about now? What do you still need to learn about in order to keep exploring your "Should We" question?
- » Part 2: Make a decision:
  - Does your family want to do more research? Go back to LE 7 to collect more data.
  - or, are you ready to take action on your "Should We" question and share what you've learned with your community? Move on to LE 10.



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### Connecting with other families

» If you're collaborating with other families, you can look over your models together! Ask another family to see if they think you still need to find out more information before you take action. They might even have some ideas about what investigations you can do next based on their own areas of expertise!

#### Disciplinary Core Ideas and Important Phenomena

"Engaging in the practices of science helps students understand how scientific knowledge develops; such direct involvement gives them an appreciation of the wide range of approaches that are used to investigate, model, and explain the world." (NRC Framework 2012, p. 42)

#### Science Practices Emphasized

- Developing and using models
- Constructing explanations
- Obtaining, evaluating, and communicating information



# **Key Ideas**

#### Modeling

Models are dynamic and ever changing based on new information learned through investigations, discussions with others, new learnings from sources like family and community, and media of various types. The patterns you find in your data will help you identify parts of your model that you might want to change, or that you can add to.

One of the most important things about returning to your initial model is that **your ideas can change** as you gather evidence and do investigations. You can form new knowledge in science!



#### **CONNECT TO OTHER ACTIVITIES**

- Learning Engagement 8.A: Summarizing and Visualizing Your Field-Based Data
- Learning Engagement 6.B.1: Pick a "Should We" Question, Explore It, and Model It

#### LEARNING IN PLACES FRAMEWORKS TO CONSIDER

- Modeling Socio-Ecological Phenomena
- Relationships in Socio-Ecological Systems
- Socio-Ecological Decision-Making and Ethical Deliberation



# **Returning to Our Models to Ask More Questions**

#### Models are meant to be changed!

Now that you have connected your new learning with your family's "Should We" question, it's time to make some decisions about your next steps. You'll do that by returning back to your model that you created in LE6.B.2 in order to see what you have learned and what you still need to learn.

Materials: For this LE, you'll need

- 1. your initial model from LE6.B.2
- 2. some sticky notes or different colored pens or pencils to add to your model
- 3. your data interpretation chart from LE

#### Part 1: Examining your model

Write your "Should We" question here:

- 1. Look over your initial model, and discuss as a family:
  - a. What relationships did you draw in this model?
  - b. Which relationships did you investigate and what did you learn?



- 2. Using a sticky note, colored pencils or markers, or anything else you have to write with:
  - a. If you learned something new that wasn't in your initial model, add that to your model!
  - b. If you had something in your initial model that you now know shouldn't have been there, you can cross it out!
  - c. If you identified a relationship in your initial model that you now know works differently than you originally thought, and/or involves other species, kinds, or behaviors than you originally thought, update your thinking in your model.
  - d. If you identified a relationship in your initial model that you now know is not central to understanding your "Should We" question, update your model and/or if you identified another relationship through your investigations that is central, add that to your model.
- 3. Next, discuss as a family: What relationships did we draw in our initial model that we have not yet investigated but still want to in order to better understand our "Should We" question?

### Part 2: Decision time!

Learning in Places

- 1. Some questions your family can ask yourselves at this point are:
  - a. Do we feel like we have learned enough about our "Should We" question to share with others what we have learned and to take some action?
  - b. Do we feel like there is still more that we can and should learn about before we share with others and take action?
- 2. If there are still more relationships that you want to explore, go back to LE7 and decide on what field-based investigations, community interviews, and/or other research about what others already know you want to do.
- 3. If your family feels like you're ready to move on, go to LE 10!



In the picture above, you can see that there is new knowledge added to the model in different colored pens. You can see that two different colors were used, meaning that we did two different investigations and added new knowledge after each investigation and our analysis of the data we collected!