Name: _____   Date: _____   **LESSON 0**

> **STOP & THINK:** What is a scientific model? Explain and give an example of a scientific model.
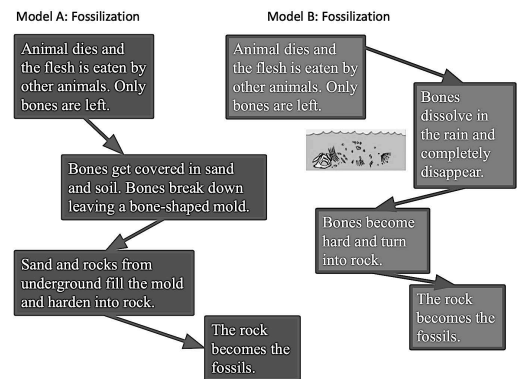>
> _____
>
> _____
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In this activity, you will evaluate which of the two models is best. You will work individually first, and then join with a partner to discuss your choices. Below is the first pair of models.

1. Which model better explains how fossils form?

On your own, look at the models and answer the following question:

Which model is better?

A. Model A is better.

B. Model B is better.

C. Models A and B are equally good.

D. It is impossible to say which is better.

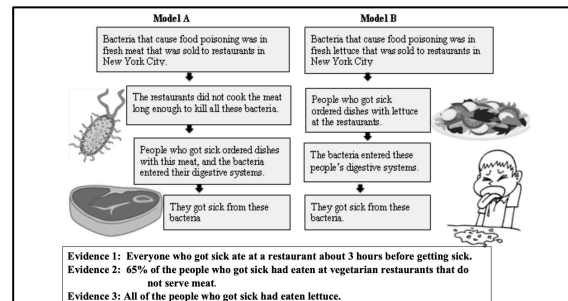Model A: Fossilization

Model B: Fossilization

In pairs, discuss which model you think is best, and why. Be sure to give lots of reasons for your ideas. Remember to try to come to agreement on your ideas and on your reasons.

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2. There was a huge outbreak of food poisoning in New York City. Health scientists developed two models of why the food poisoning occurred.

On your own, look at the models and answer the following question:

Which model is better?

A. Model A is better.

B. Model B is better.

C. Models A and B are equally good.
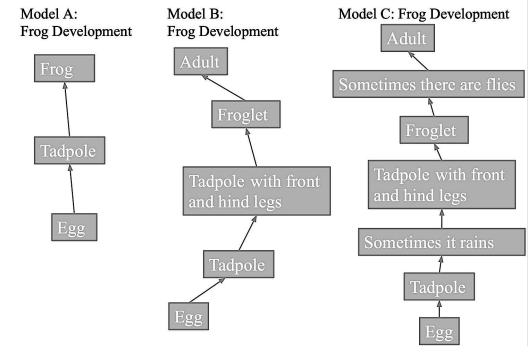
D. It is impossible to say which is better.

In pairs, discuss which model you think is best, and why. Be sure to give lots of reasons for your ideas. Remember to try to come to agreement on your ideas and on your reasons.

Name: _____   Date: _____   **LESSON 0**

3. Which of these three models is a better explanation of the development of a frog?

On your own, look at the models and answer the following question:

Which model is better?

A. Model A is better.

B. Model B is better.

C. Model C is better

D. The models are all equally good.

E. It is impossible to say which is
    better.

Model A:
Frog Development

Frog

Tadpole

Egg

Model B:
Frog Development

Adult

Froglet

Tadpole with front
and hind legs

Tadpole

Egg

Model C: Frog Development

Adult

Sometimes there are flies

Froglet

Tadpole with front
and hind legs

Sometimes it rains

Tadpole

Egg

In pairs, discuss which model you think is best, and why. Be sure to give lots of reasons for your ideas. Remember to try to come to agreement on your ideas and on your reasons.
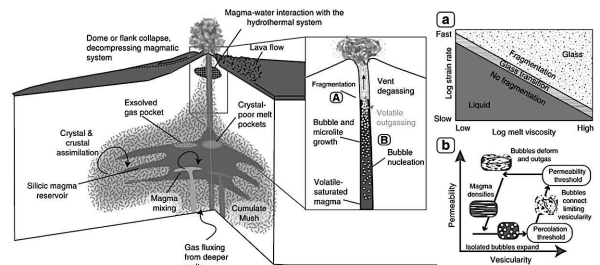
4. Which of these two models is better if you want to explain why volcanoes erupt?

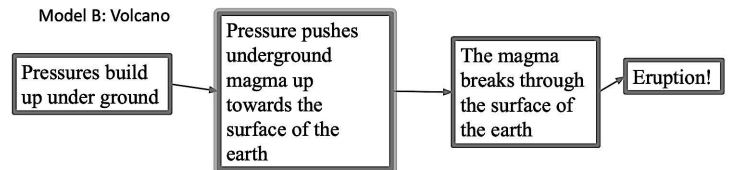On your own, look at the models and answer the following question:

Which model is better?

A. Model A is better.

B. Model B is better.

C. Models A and B are equally good.

D. It is impossible to say which is better.

Model A: Volcano

Model B: Volcano

Pressures build
up under ground

→ Pressure pushes
underground
magma up
towards the
surface of the
earth

→ The magma
breaks through
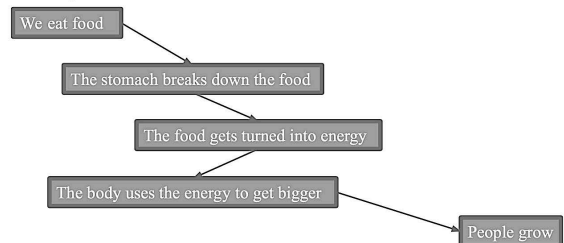the surface of
the earth

→ Eruption!

In pairs, discuss which model you think is best, and why. Be sure to give lots of reasons for your ideas. Remember to try to come to agreement on your ideas and on your reasons.

5. Which of these two models is better if you want to explain how people grow?

On your own, look at the models and answer the following question:

Which model is better?

A. Model A is better.

B. Model B is better.

C. Models A and B are equally good.

D. It is impossible to say which is better.

Model A: How People Grow

| Age 0 19 inches | Age 3 37 inches | Age 6 46 inches | Age 9 53 inches | Age 12 59 inches | Age 15 67 inches |

Model B: How People Grow

We eat food

The stomach breaks down the food

The food gets turned into energy

The body uses the energy to get bigger

People grow

In pairs, discuss which model you think is best, and why. Be sure to give lots of reasons for your ideas. Remember to try to come to agreement on your ideas and on your reasons.

STOP & THINK: Why is it important to give and ask for reasons in science?

_____

_____

_____

Now that you have evaluated several models you are ready for the next task.
Let's develop a set of criteria for model quality to help us make good models and evaluate models.

- **Individually**, make a list of the most important characteristics of good models.
- Write down 6 characteristics of <u>good</u> models.
- Rank all your criteria from "<u>most important</u>" to "<u>least important</u>". Put a number in the little box on the left, with 1 being most important and 6 the least important.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

BEFORE YOU GO: Think about the class criteria list that you made. Which two criteria from the class list are most important? Why do you think so?

_____

_____

_____

_____

_____