Putting It Together

How do scientists use fossil bones to reconstruct animals?

Predict how your arrangement of the fossil bones will change as you gather more data.

My Predictions

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My Observations

Draw sketches of your reconstructions of the mystery animal as you fit the bones together. When you finish, draw a picture of how the animal might have appeared when it was alive.

Analyze Results

Compare your reconstruction with those of other teams. What might account for any differences you found?

Create Explanations

1. How do scientists use fossil bones to reconstruct animals?

2. What might account for differences in scientists' interpretations of the fossil record?

3. Looking at the assembled fossil, what can you infer about this animal?

Geological Dig Experience

How can you excavate buried fossils?

Predict what the location of buried objects might tell you about their history.

My Predictions

My Procedure

What materials will you use in your model dig? Describe how you plan to systematically excavate the buried model fossils and reconstruct their history.

My Observations

Sketch and label the objects found in the fossil dig site as you work.

If you made a major find in the dig site, sketch your reconstruction below. Where was it located in the "geologic column" of the dig site?

Create Explanations

What did you learn?

Structured Inquiry

Engage

Stories in Stone

What information do fossils provide?

Materials
- leaf
- paper plate
- petroleum jelly
- plaster of Paris
- 2 plastic cups (short, wide-mouth)
- seashell
- talcum powder
- 3–5 toothpicks

Make an Imprint Fossil

1. Pour about 5 cm (2 in.) of plaster of Paris into one of the plastic cups.
2. Quickly, but carefully, place your leaf, vein side down, on top of the plaster. Press it down so that the whole leaf is in contact with the plaster but is still lying on top. Leave the leaf on the plaster of Paris for about 1 hour.
3. In the data table, draw a picture of what you think the impression of the leaf will look like.
4. After the plaster has hardened, carefully remove the leaf and observe the "fossil" imprint. Draw a picture of this in the data table.

Make a Mold and Cast Fossil

1. Coat the bottom surface of the seashell (the part you plan to place in the plaster) with petroleum jelly.
2. Pour about 5 cm (2 in.) of plaster of Paris into the second plastic cup.
3. Place the shell bottom side down (the side coated with petroleum jelly) on top of the plaster. Press the seashell so about 3/4 of it goes into the plaster. This will become a "mold fossil." Draw what you think this mold fossil will look like in the data table.
4. After about 40 minutes, before the plaster completely hardens, gently pull the shell out of the plaster. This will leave an impression in the plaster. Draw a picture of what this "mold fossil" actually looks like in the data table.
5. Let the plaster harden for at least an hour.

6. Put a thin layer of talcum powder on top of the plaster so it is evenly sprinkled everywhere, including the surface of the mold.

7. Pour some more plaster of Paris on top of the mold of the shell. The new plaster will become a "cast fossil." Let this cure for 2–3 hours. Draw a picture of what you think this "cast fossil" will look like.

8. After the plaster has cured (hardened), carefully separate the cast from the mold.

Make a Trace Fossil

1. Pour some plaster of Paris onto the paper plate so that it forms a puddle about 1 cm (½ in.) thick. Before the plaster hardens, use the toothpicks to make animal tracks, animal trails, skin prints (fingerprints), and burrows in the plaster. Once you have completed making the trace fossils, draw a picture of the plaster with the fossils in the data table.

Create Explanations

1. What information do fossils provide?

2. Which of the fossils that you made gave the best representation of the actual item?

3. How do the mold and cast fossils compare?

My Predictions

Predict some information that may be provided by fossils.

My Observations

Record your observations in the data table.

Prediction of What the Fossil Will Look Like	What the Fossil Actually Looks Like
Imprint Fossil	**Imprint Fossil**
Mold Fossil	**Mold Fossil**
Cast Fossil	**Cast Fossil**
Trace Fossil	**Trace Fossil**

Create Explanations

1. What information do fossils provide?

2. Which of the fossils that you made gave the best representation of the actual item?

3. How do the mold and cast fossils compare?