

Mystery Bags

- Do not look inside the bag.
- What does it feel like?
- Is it smooth?
- Is it rough?
- Can you describe it so that your group members can guess what it is?
- Can you guess what it is without looking at it?

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What do you know?

- Index fossils only appear in a specific geologic age and can be used to date the rock layer in which they are found.
- The Phacops and Eospirifer index fossils suggest that the organism lived in the Devonian and Silurian eras.
- The Flexicalymene fossil is older than the Meekoceras fossil.

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Fossils

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Index Fossils

- What is an index fossil?
- An index fossil is the fossilized remains of a creature which lived in a very specific geologic time period in many places around the world.

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Index Fossils

- What if music bands were fossils?



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Fossil Hunt

- There are ten fossil formations in the back of the room.
- You will each receive a worksheet to fill out as you work in each station.
- Sand is fun, but try to keep it in the bin.
- You will have one minute at each station.
- We will give you a half-time warning, and let you know when it is time to switch.

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Fossil Hunt

- 1) Dig up a fossil at the station in front of you.
- 2) On your worksheet, write down the station name and number and make a quick sketch in the space provided.
- 3) Briefly describe the fossil's overall shape and texture in the space provided as well as the name of the fossil, using the "Fossils in geologic time" sheet.
- 4) Using the "Fossils in geologic time" sheet, write the era on your worksheet.
- 5) Put the fossil back in the bin, and wait for us to tell you to change places. You have one minute at each station.

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Fossil Hunt

Make sure you have filled out all 5 parts for each station.

1 Station formation (name & number): _____ 2 Index fossil: _____

Sketch 3 _____ 4 Description of Fossil: _____

5 Era: _____

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Fossil Hunt

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Fossil Hunt

- Which fossil is this?
- What time period did it come from?



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Fossil Hunt

- Which fossil is this?
- What time period did it come from?



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Fossil Hunt

- What is a fossil's relative date?
- It is the age of the fossil relative to other fossils.
- This can be determined by looking at the rock layer the fossil is in, and comparing it with other rock layers and prior knowledge about the relative ages of the rock layers.

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Fossil Hunt

- Why is it important to know the relative dates of index fossils?
- Because it can help scientists identify when other fossilized organisms lived in the past. These other organisms may have occurred in several geologic eras.

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Fossil Hunt

- What if we found this surrounded by a bunch of *Meekoceras* fossils?



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Fossil Hunt

- What if we also found some *Tetragramma* fossils nearby?



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Fossil Hunt

- What if we found this set of jaws?



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Fossil Hunt

- What is the age of the Pterosaur (left) relative to the *Carcharodon* (right)?



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Fossil Hunt



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Fossil Hunt

- What if we found this surrounded by fossils of *Michelinoceras*?



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Fossil Hunt

- What if we also found some *Eospirifer* fossils?



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Fossil Hunt

- What if we then found some *Phacops* fossils?



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Fossil Hunt

- What is the age of the Trilobite relative to the *Carcharodon* and the Pterosaur?



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Index Fossils

- Why are index fossils important?
 - They help us to identify the time periods when other organisms lived. They also allow us to make a time-line of earth's past geological and biological history.
- How?
 - They appear in abundance in only one geologic time period.
- Why is that important? Why wouldn't the trilobite make for a good index fossil?

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Index Fossils

- Can index fossils be useful in the same ways that regular fossils can be useful?
- How are regular fossils useful?
 - They provide a record for biological change over time.
 - They help people learn about living things from the past.
 - They support evidence for evolution.
 - They can tell us about past environments.

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Index Fossils

- Are all fossils index fossils?
- Why not?
 - Not every creature that ever lived was specific to only one geologic time period.
 - Not every creature was common all over the Earth.

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Fossils

- Does the fossil record include all animals that ever lived?
- Why not?

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The Rarity of Fossils

- Some fossils are buried under cities, so we can't get to them.
- Some creatures are more likely to become fossils than others. For example, organisms with hard shells or bones are more likely to be fossilized.
- Fossils that have formed in the past may have been destroyed by geologic processes.
- Not everything that dies can become a fossil. It depends on the environment in which the organism lived and the way in which the organism died.

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One hit wonders



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Quick Review

- What is an index fossil?
- How are they useful?
- What is a fossils relative date?

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