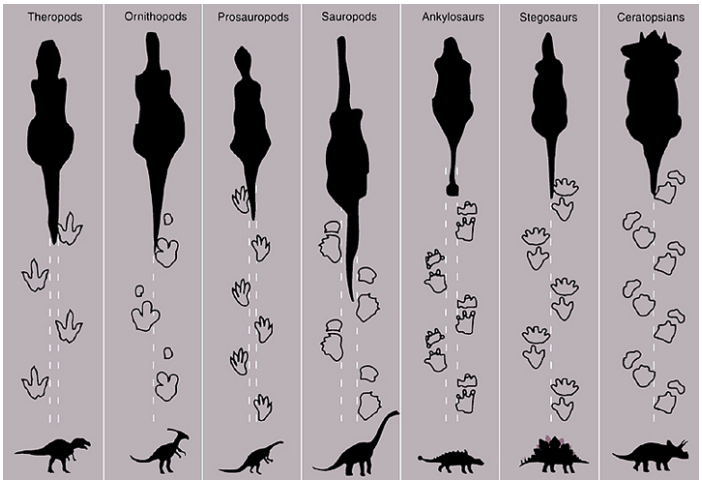
Inferring from Tracks

- **1A. Why might the two footprints be different sizes?**
- The footprints might show hind limbs and forelimbs.
- The footprints were made in different ways (e.g. tippy toes vs. flat foot)

Dinosaur Footprints (Marin, 2006)



Inferring from Tracks

- **1b. Did this animal have a perfect flat foot or a padded foot?**
- The animal had a padded foot. We can tell because the footprint is divided into sections.

Inferring from Tracks

- **1c. Did this animal have long claws or dull toenails? How do you know?**
- The animal has dull toenails.
- The edges are rounded and not at a point.

Inferring from Tracks

- **1d. This creature lived during the Jurassic time period. Which dinosaur do you think left this trace fossil? Explain your answer.**
- It could be the Haplocanthasaurs, Hylaeosaurs, Diplodocus, or Camarasaurus.
- Each of these dinosaurs' feet have claws that appear rounded.

Inferring from Tracks

- **1e. What can you infer about footprints left in parallel sets traveling in the same direction?**
- The dinosaurs traveled in herds.
- The dinosaurs traveled along similar routes.

Inferring from Tracks

- **2a. Did this animal have long claws or dull toenails? How do you know?**
- This animal had long claws.
- The footprints show sharp, pointed nails.

Inferring from Tracks

- **2b. How could sharp footclaws be useful to a dinosaur?**
- Sharp footclaws can be used for defense, capturing prey, gripping, and digging.
- Anything else?

Inferring from Tracks

- **2c. These footprints were found in a layer of limestone rock that also had fossils of freshwater clams imbedded in it. Explain how this could have happened?**
- The animal made the footprints in or near a body of water.
- The animal was seeking prey in or near the water.

Inferring from Tracks

- **2d. This animal also lived during the Jurassic time period. Which dinosaur do you think left this trace fossil? Explain your answer.**
- Allosaurus or T-Rex.
- They have sharp nails on their feet and the shape of their foot matches the footprint.

Inferring from Tracks

- **3a. Which of the two sets was probably made by a four legged, heaver dinosaur? How do you know?**
- Set A. The footprint is larger and is similar in shape to all the large, 4-legged dinosaurs on the sheet.

Inferring from Tracks

- **3b. Which of the two sets was probably the faster dinosaur? Explain how you know.**
- Set B. The shape of the foot (3-toed) lends itself to quicker movement. The larger claws might improve tracking for running.

Inferring from Tracks

- **3c. Which of the two sets was probably a predator? Explain how you know.**
- Set B. The larger and sharper claws reveal it may be a carnivore.

Inferring from Tracks

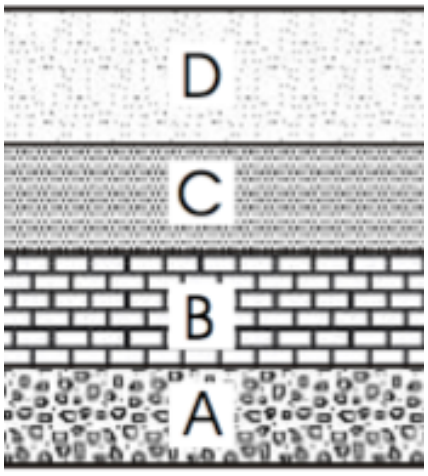
- **3d. What are a few modern day animals that have similar footprints?**
- Set A: Elephant (flat foot, 4 toes), many mammals (cats, dogs, bears, etc.)
- Set B: Birds.

Rules of Relative Age

- **Purpose:** Review the rules for reading rock layers to learn more about earth's history.
- **GQ:**
  - How do scientists learn about earth's history?

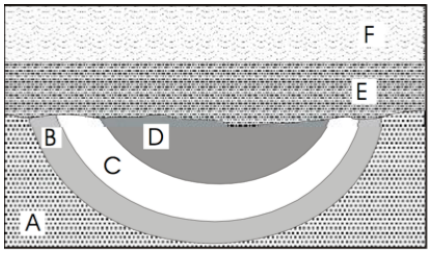
Law of Superposition

- In undisturbed layers, the oldest layer is on the bottom and every layer above it is progressively younger.
- **Order:** A, B, C, D



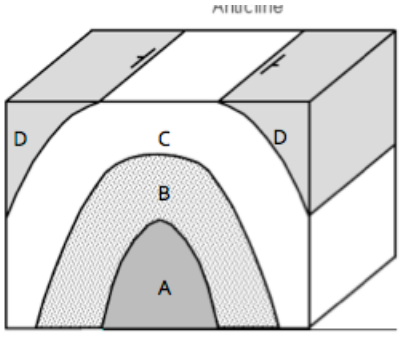
Synclines

- Downward bend in rock. Outermost layer is the oldest and progressively younger inward.
- **Order:** A, B, C, D, E, F



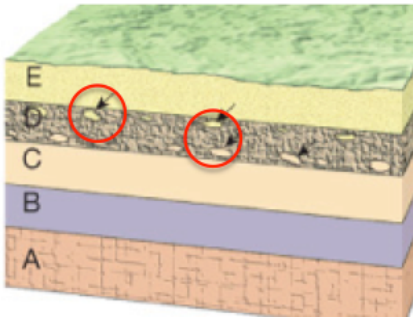
Anticlines

- Upward curve in rock. Innermost layer is the oldest and progressively younger as you move outward.
- **Order:** A, B, C, D



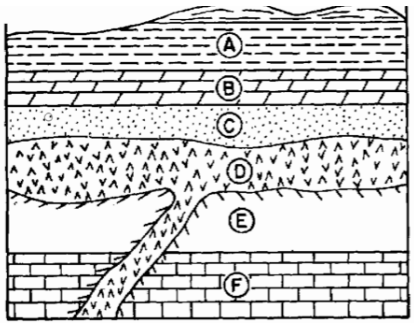
Principle of Inclusions

- Pieces of a layer found in another layer are older than the layer they are found in.
- **Order:** A, B, C, E, D



Igneous Rock Layers (Extrusions)

- Igneous layers are younger than the layers they cut through and form on top of.
- **Order:** F, E, D, C, B, A
- *Note no parts of C are found in D, which is how we know C formed after D.*



Cross-Cutting Relationships

- Faults and intrusions are younger than anything they cut through.
- **4 is older than B.**
- **2 is older than B.**
- **2 is older than 3.**
- **B is older than 3.**
- **6 is older than 3.**