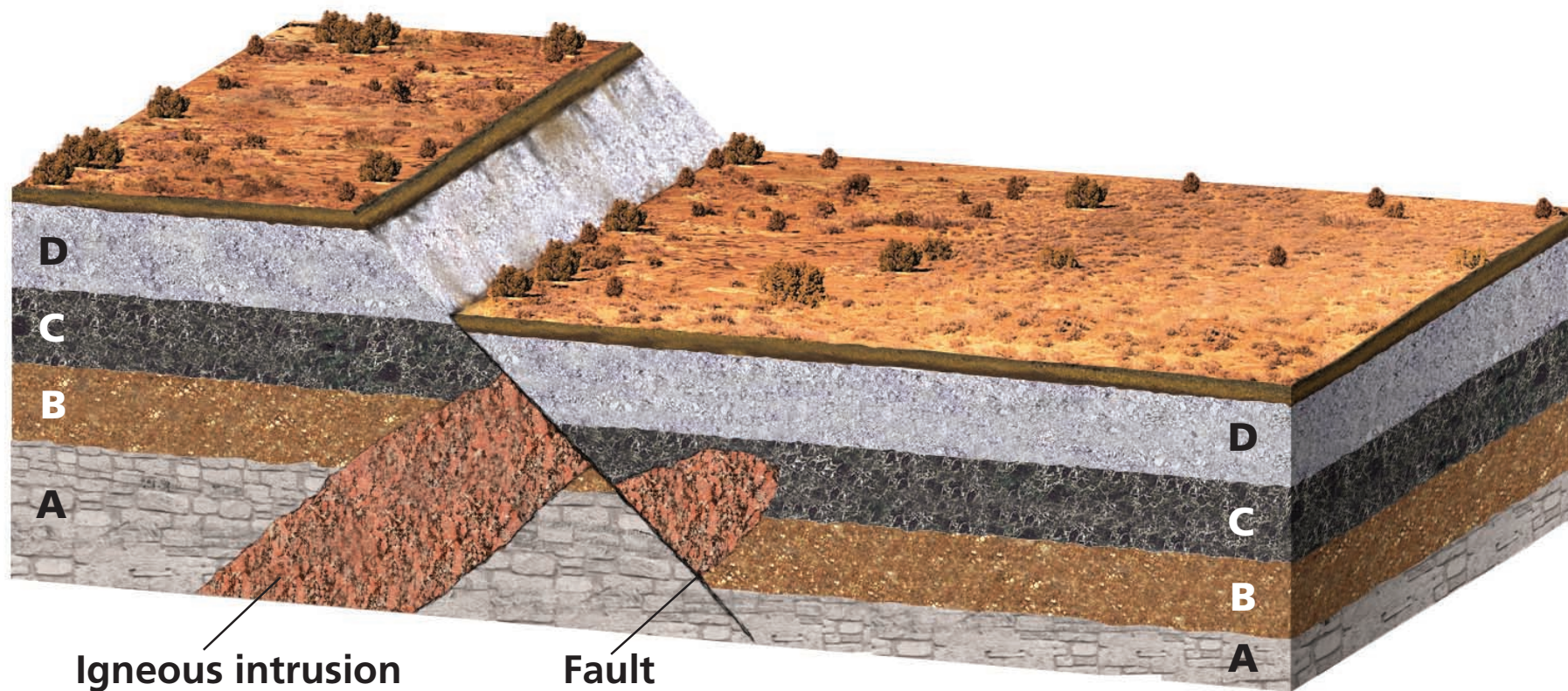


Crosscutting Relationships



Transparency Worksheet

Crosscutting Relationships

1. In the diagram, which rock is youngest, the fault or the igneous intrusion? Explain your answer.

2. In this diagram, what event occurred most recently? Explain your answer.

3. Which is younger, the igneous intrusion or layer C? Explain your answer.

4. Can you tell which occurred first, the intrusion or the deposition of layer D? Explain your answer.

- the turbine
- a generator
- Answers may vary. Sample answer: The turbine spins rapidly to generate electricity. Fish would have to pass through it to get past the dam.
- Answers may vary. Sample answer: Yes, but a smaller amount of electricity would be generated.

38 Wind Power in the United States

- WY and AK
- CA and WA
- TX
- the Rocky Mountains
- TX
- The comparison means that these states could be a major source of wind energy, much as Saudi Arabia is a major source of oil.

39 Law of Superposition

- sedimentary rock
- that the rock layer is underformed
- Sedimentary layers will always be deposited on top of metamorphic rock or large igneous rock masses. Igneous rock from volcanic eruptions can be deposited as part of the rock sequence.
- Layer B is older than layer C, because the law of superposition dictates that an underformed rock layer is older than the layers above it.

40 Types of Unconformities

- Nonconformities involve layers of sedimentary rock that form on top of unstratified rock. Angular unconformities and disconformities both involve sedimentary rock layers that form on top of stratified rock.
- Unconformities indicate that a rock layer was exposed to erosion for a period of time before the overlying sedimentary layers were deposited. This erosional period creates a break in the geologic record.
- metamorphic or igneous rock
- a disconformity, because all of the rock layers are stratified and horizontal
- an angular unconformity

41 Crosscutting Relationships

- the fault, because the law of crosscutting relationships states that the fault is younger than the rock it cuts
- Faulting must have occurred most recently because it cuts through all the layers of rock and the intrusion.
- The igneous intrusion is younger because it cuts through layer C.
- No. Either could have formed after layer C was deposited but before faulting occurred.

42 Radioactive Decay and Half-Life

- In beta decay, a neutron gives off a beta particle. In alpha decay, an alpha particle consisting of two protons and two neutrons is emitted.
- The mass of the atom decreases because the atom loses two protons and two neutrons that make up the alpha particle.
- 4
- one-half
- after one half-life

43 Geologic Map of Bedrock in Ohio

- the Permian, Pennsylvanian, Mississippian, Devonian, Silurian, and Ordovician
- The youngest bedrock is in the southeastern part of the state; the oldest bedrock is in the western part of the state.
- In traveling east to west, the bedrock would generally become older.
- The bedrock layers are tilted upwards. The more horizontal surface of earth cuts across the angled layers and thus exposes them. If the layers were horizontal, only the top, or youngest layer would be exposed.
- because Mississippian rock was formed in the Mississippian Period just after the rock formed in the Devonian Period
- To find early reptile fossils you'd look in Pennsylvanian rock, represented by the color blue, which occurs in a large stripe extending to the southwest from eastern Ohio.

44 The Geologic Time Scale

- More recent rocks have been altered or eroded less than older rocks have and