

Water Shapes Rock

Trace how moving water changes rock materials.

HS-ESS2-5 "Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. Clarification Statement: Emphasis is on mechanical and chemical investigations with water and a variety of solid..."

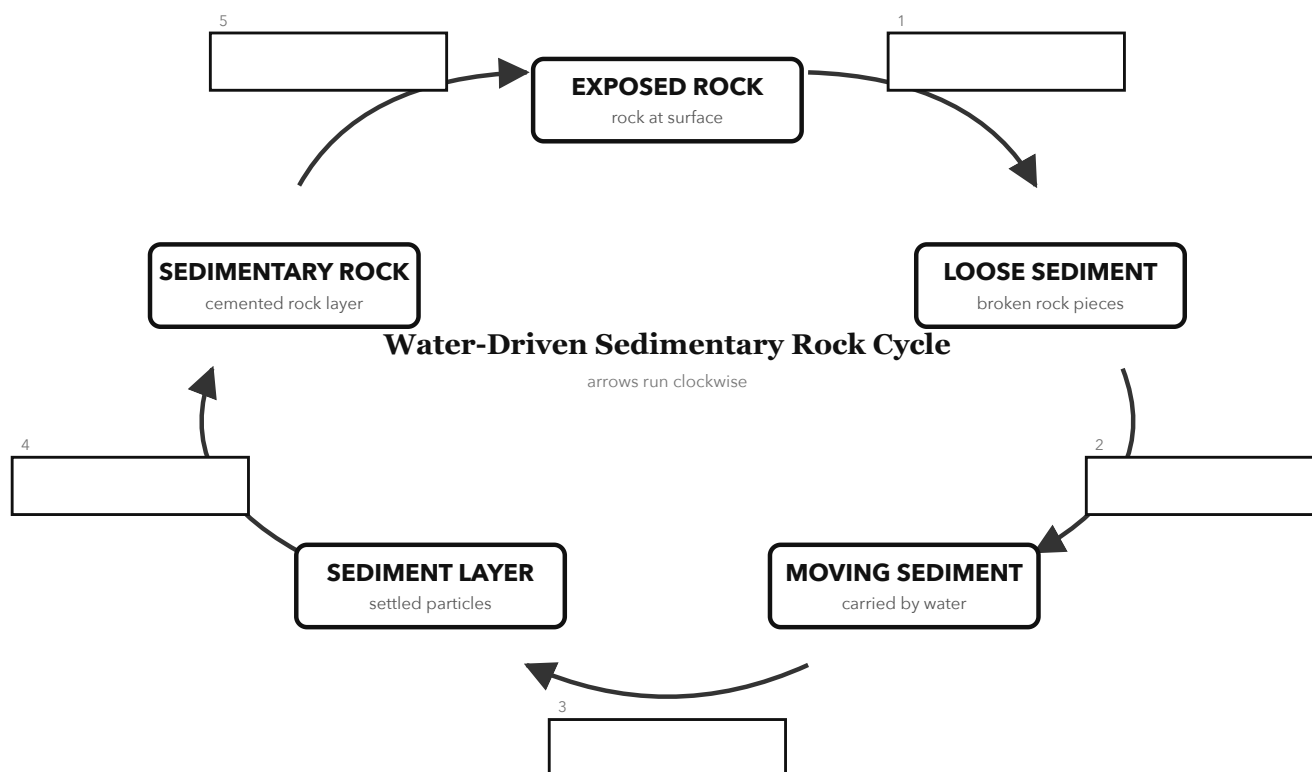
NAME _____

DATE _____

1 LABEL THE MODEL _____ Word bank below

Write one process from the word bank in each numbered box. Match each process to the arrow that moves one stage to the next stage in the cycle.

WORD BANK
deposition
erosion and transport
lithification
uplift and exposure
weathering



2 RUN THE MODEL Use your finished diagram

1 Which process belongs in box 2? Describe what water does to the material during this step.

2 Use the completed model to plan and conduct a stream-table investigation of the arrow from LOOSE SEDIMENT to MOVING SEDIMENT. State one independent variable, three controls, one measurement, and how you will use results as evidence. Run at least three trials for each condition.

3 In a stream table, sediment settles after the water slows. Which numbered box represents this process, and which stage comes next?

3 CHECK IT Before you turn it in

☐ I matched every process to an arrow.

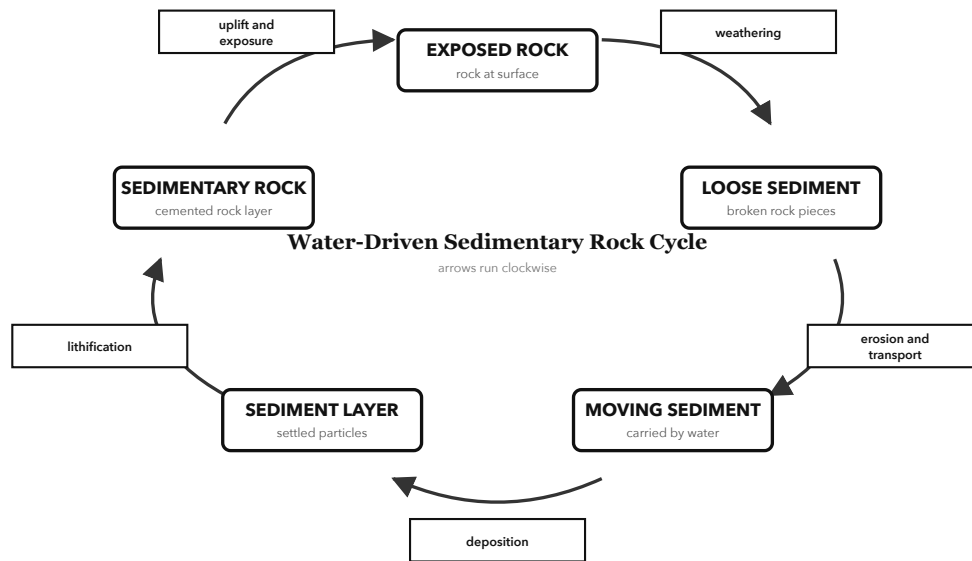
☐ I can explain how water moves sediment.

☐ I used observations as evidence.

TEST THE MODEL

What is one water-related process or system interaction that this model leaves out?

PART 1 • COMPLETED MODEL



PART 2 • RUN THE MODEL

- Erosion and transport. Flowing water picks up and moves loose sediment.** (Which process belongs in box 2? Describe what water does to the material during this step.)
- Vary water flow rate. Keep sediment type and amount, channel shape, and run time the same. Measure the mass or distance of sediment moved. Compare trial averages; more or farther-moving sediment at a higher flow rate is evidence for erosion and transport.** (Use the completed model to plan and conduct a stream-table investigation of the arrow from LOOSE SEDIMENT to MOVING SEDIMENT. State one independent variable, three controls, one measurement, and how you will use results as evidence. Run at least three trials for each condition.)
- Box 3, deposition. The next stage is SEDIMENT LAYER.** (In a stream table, sediment settles after the water slows. Which numbered box represents this process, and which stage comes next?)

TEST THE MODEL (SAMPLE ANSWERS)

- It leaves out evaporation, condensation, and precipitation in the hydrologic cycle.
- It leaves out chemical weathering, such as water dissolving minerals in rock.

The model emphasizes a water-driven sedimentary rock sequence. For the investigation response, accept other testable variables, such as slope or sediment moisture, if students identify controls, collect repeated measurements, and connect results to erosion and transport.