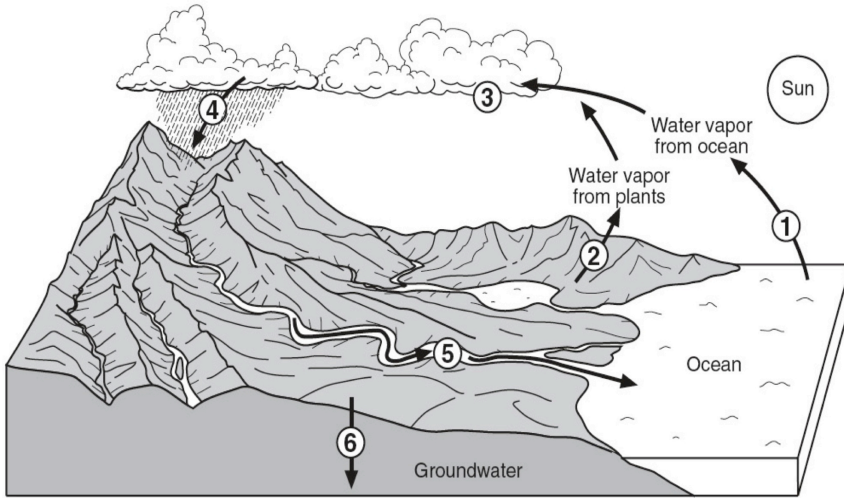


THE HYDROLOGIC CYCLE

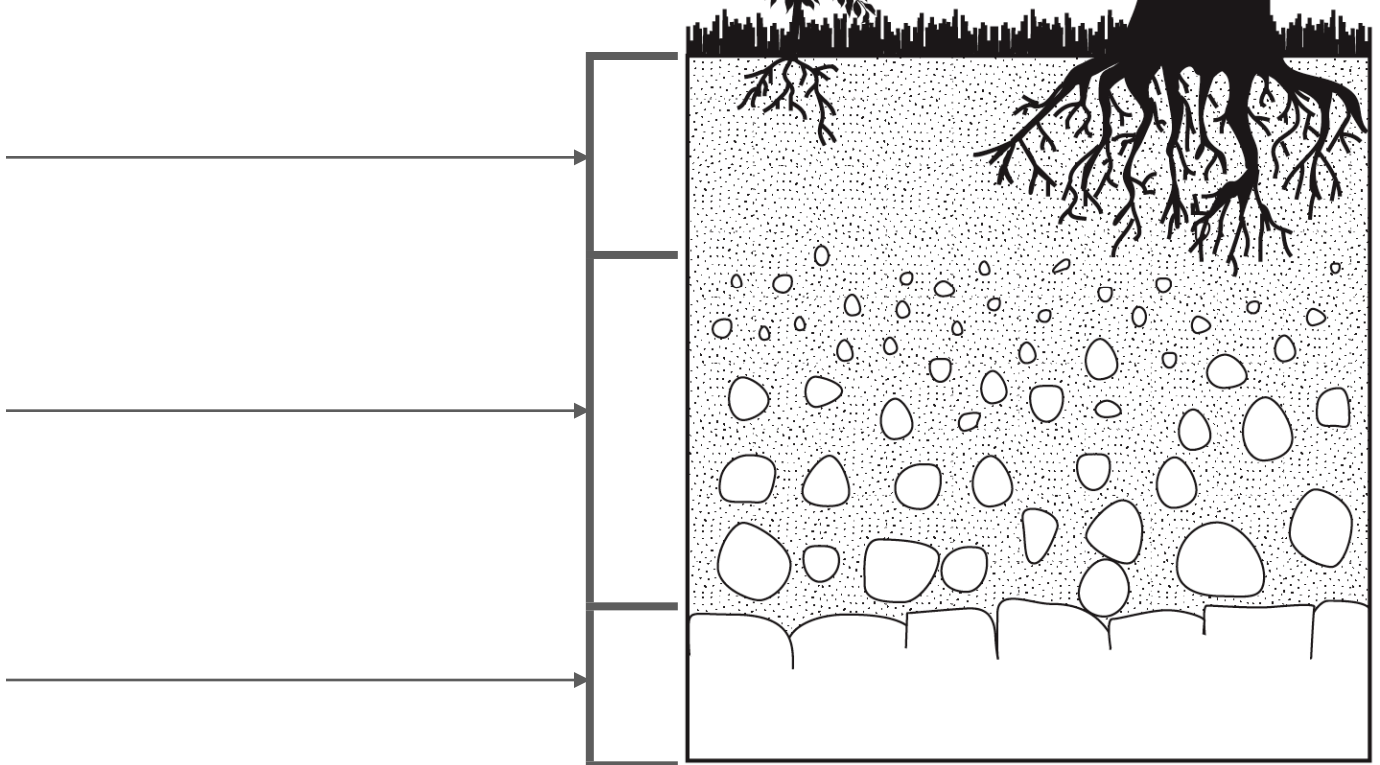


List the processes shown in the diagram.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

SOIL (REGOLITH)

List what each layer of the soil is mainly composed of in the space provided.

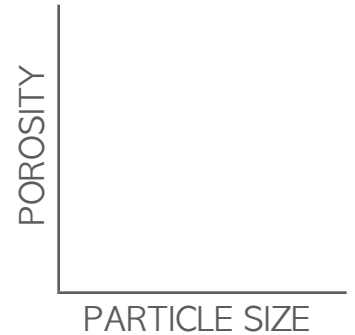


INFILTRATION OR RUNOFF?

- ▶ Steep Slope: _____
- ▶ Frozen Ground: _____
- ▶ Saturated Soil: _____
- ▶ Gradual Slope: _____
- ▶ Thawed Ground: _____
- ▶ Unsaturated Soil: _____

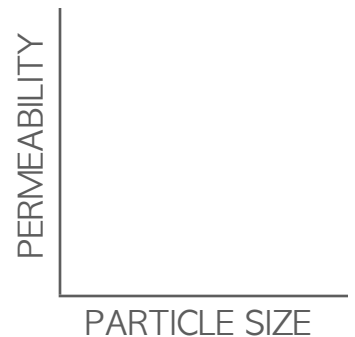
POROSITY

- ▶ Definition: _____
- ▶ Relationship with particle size: _____



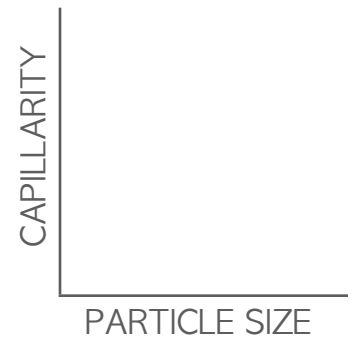
PERMEABILITY

- ▶ Definition: _____
- ▶ Relationship with particle size: _____



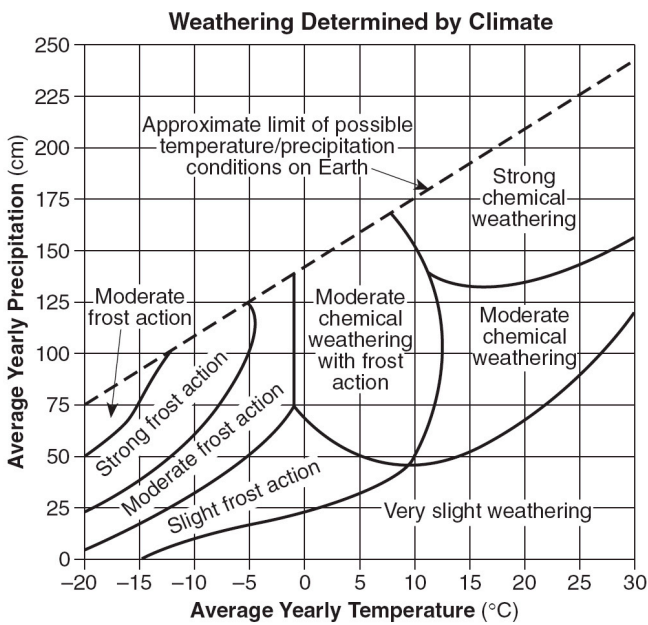
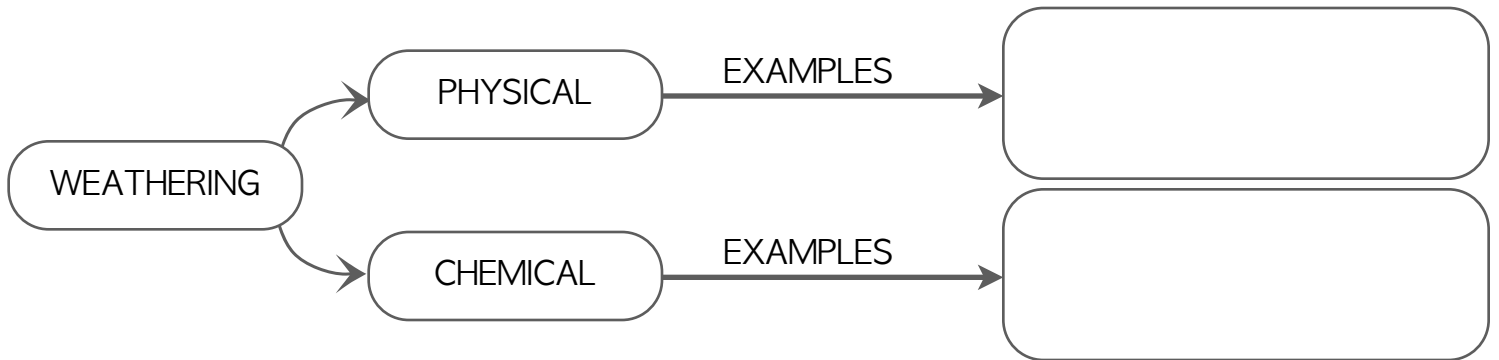
CAPILLARITY

- ▶ Definition: _____
- ▶ Relationship with particle size: _____



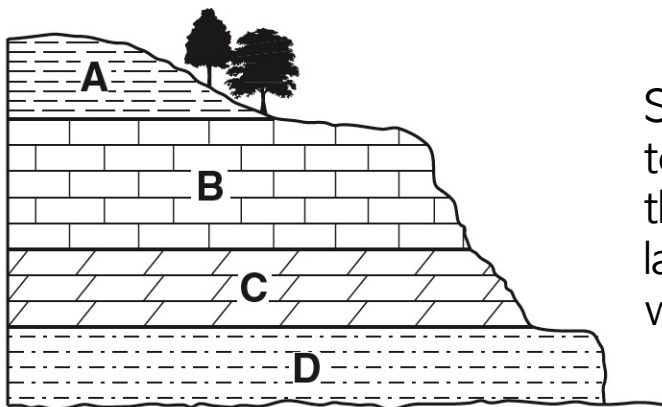
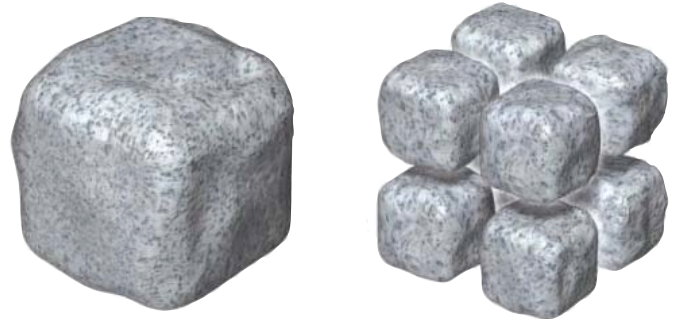
WEATHERING

► Definition: _____

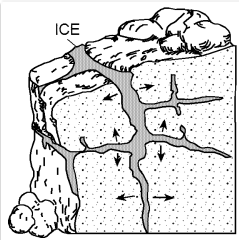


Climate is the most important factor that determines the amount and type of weathering that will occur in a location

The more exposed surface area of a substance, the faster it will weather.



Some rocks and minerals are resistance to weathering and will wear away slower than other layers of rock. In this diagram, layer D is the most resistant to weathering.



Name	Type (Physical/Chemical)	Description
Ice Wedging or Frost Action		



Name	Type (Physical/Chemical)	Description
Wind Abrasion		



Name	Type (Physical/Chemical)	Description
Carbonation of limestone		



Name	Type (Physical/Chemical)	Description
Stream Abrasion		



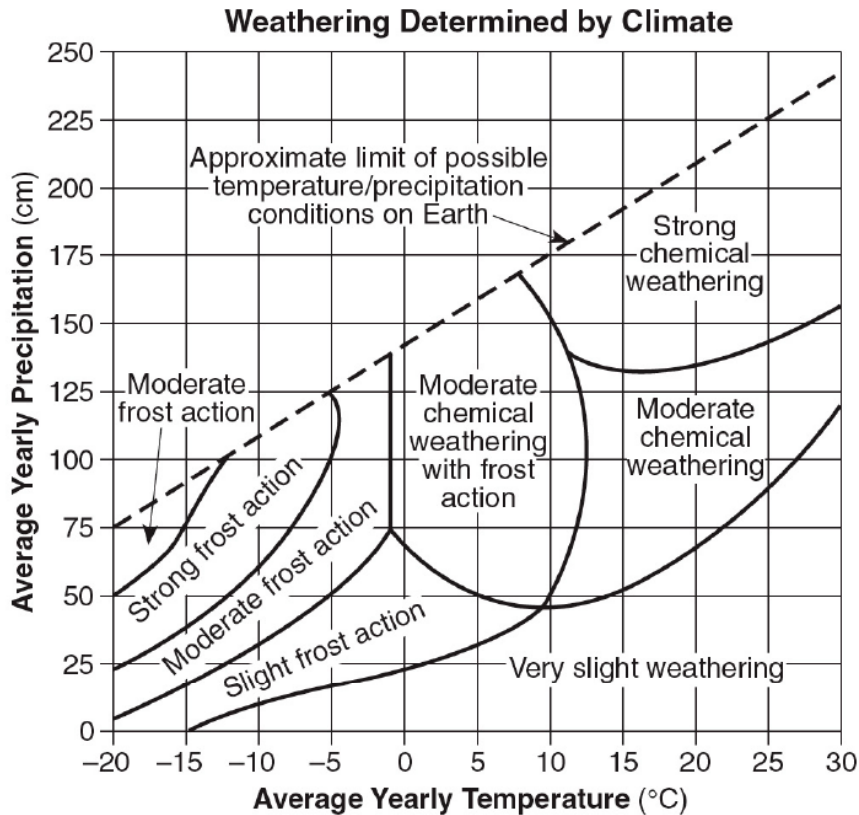
Name	Type (Physical/Chemical)	Description
Root Wedging		



Name	Type (Physical/Chemical)	Description
Exfoliation		

Weathering and Climate

The type of weathering that dominates in an area depends on the climate in that area. Specifically, the major factors that control climate, and thus weathering, are precipitation and temperature. The graph below indicates the general relationship between precipitation, temperature and the type and rate of weathering.



1. What is the range of temperatures shown on this graph? _____

2. What is the range of yearly precipitation? _____

3. Weathering rates are described as:

- 1.
- 2.
- 3.
- 4.

4. Determine the major type of weathering that occurs in Washington, D.C. if the average yearly temperature (AYT) is 15°C and the average yearly precipitation (AYP) is 111 cm.

5. The AYT in Albany, N.Y. is 9°C and the AYP is 98 cm. What is the major type of weathering that occurs in Albany?

6. What is the major difference, in terms of weathering type, between Washington, D.C. and Albany, N.Y.? What might explain this difference?

7. Phoenix, Arizona has an AYT of 20°C and an AYP of 22 cm. How would the climate of Phoenix have to change for moderate chemical weathering to become dominant?

8. According to the graph, no frost action occurs at an AYT above 13°C . What is a possible reason for this?

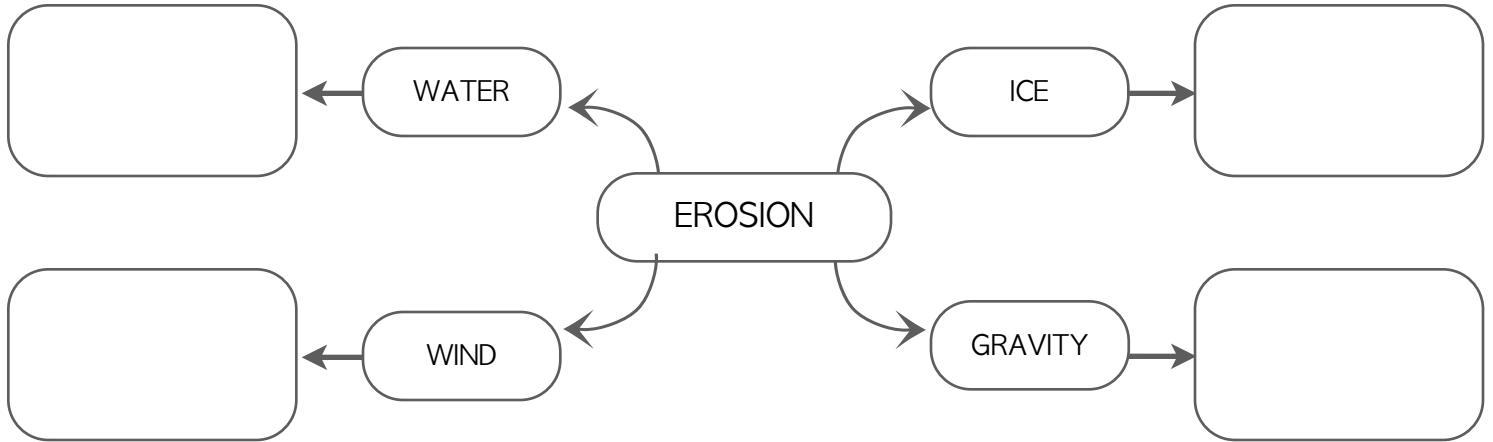
9. In general, what region of the country most likely experiences the greatest chemical weathering?

10. In general, what region of the county most likely experiences the greatest mechanical weathering?

11. In terms of climate, how does a region that experiences strong chemical weathering differ for a region that experiences strong mechanical weathering?

EROSION

▶ Definition: _____



▶ Transported Sediments: _____

▶ Residual Sediments: _____

Erosion by Gravity

▶ Known as a _____

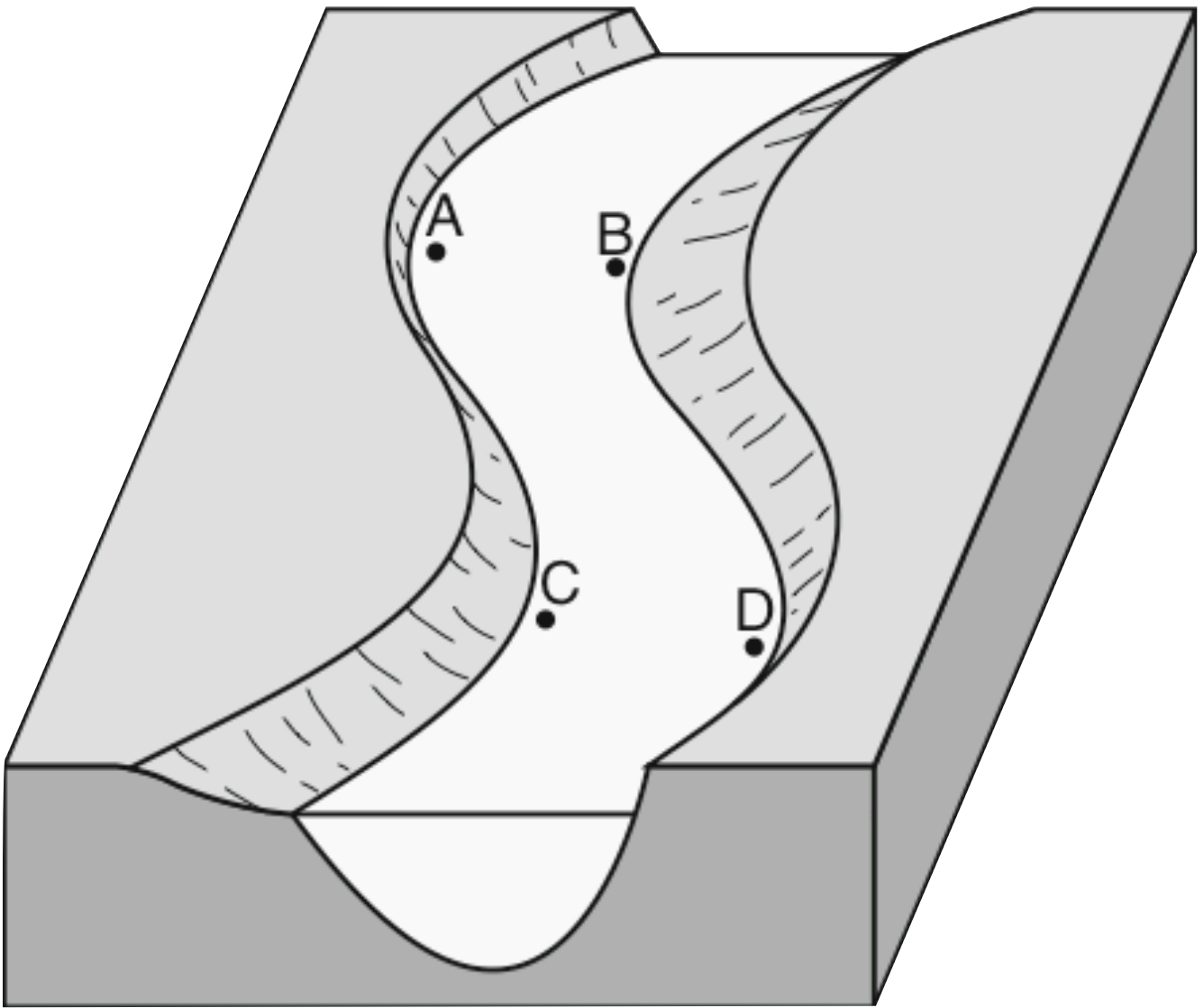
▶ Examples include...

- ▶ _____
- ▶ _____
- ▶ _____

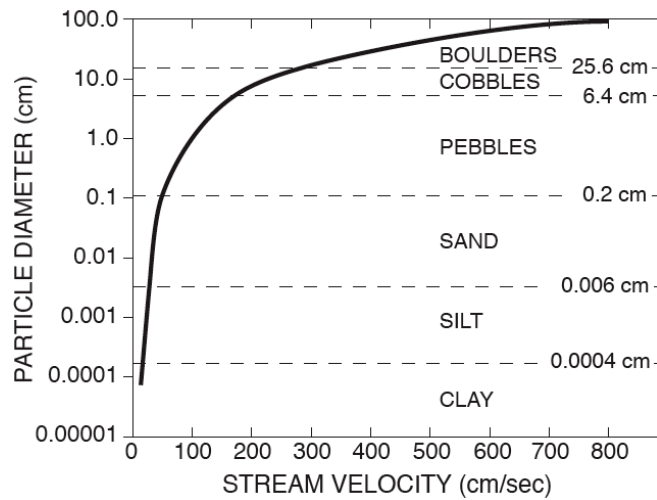
Erosion by Running Water

▶ Stream Features include...

- ▶ Deltas: _____
- ▶ Valters: _____
- ▶ Flood Plains: _____
- ▶ Meanders: _____



Relationship of Transported Particle Size to Water Velocity



1) Name the particles (sediments) that will be carried by water at the following velocities:

- 500 cm/sec _____
- 100 cm/sec _____
- 200 cm/sec _____
- 50 cm/sec _____

2) Name the particle(s) that will be deposited if a stream moving at 700 cm/sec suddenly decreases in velocity to 225 cm/sec?

3) State the water velocity necessary to maintain the transport of the following sized particles.

- 0.1 cm particle diameter: _____
- 25.6 cm particle diameter: _____
- 0.001 cm particle diameter: _____
- 10 cm particle diameter: _____

4) Why do you think particle size diameters appear on BOTH the left and right sides of the chart?

5) As soon as water velocity decreases even slightly, what occurs?

6) Name the particle(s) that cannot be transported by a stream moving at 150 cm/sec.

7) State the range of particle sizes for a "cobble". _____

8) At approximately what speed will the stream no longer be able to transport pebbles. _____

DEPOSITION

- ▶ Definition: The dropping off of sediments that occurs whenever the agent of erosion slows down or stops.