

## Make a River

In the story, Class V is mentioned in the story to explain the rapids. This classification is part of the International Scale of River Difficulty used for water sports such as rafting, kayaking and canoeing. It rates the safety of a stretch of a river or a single rapid.

- Class I This is considered the easiest classification. The rapids are fast moving with few obstructions. There is very little risk to a person if they fall into the water.
- Class II A novice rafter can easily travel through these rapids. The rapids are obvious and found in wide, clear channels. Some easy maneuvering may be needed to avoid rocks. Rafters rarely need help if they fall in the water.
- Class III This classification is for intermediate rafters. The rapids are moderate although there are there are numerous irregular or larger waves, tighter passages, and powerful currents. Tight maneuvering of the raft is needed. Help for swimmers may be needed, especially if they are in the water for a lengthy period.
- Class IV Advanced rafting skills are needed to paddle through these powerful, long rapids. There are unavoidable large waves, holes, and small passages that need fast and tight maneuvering. A person in the water is likely to get injured and will need assistance to get out of the water.
- Class V This classification requires expert rafting skills. These rapids can be long and violent, with many obstructions, large waves, and holes. There may also be steep passages. It is very dangerous if a rafter falls in the water and they will need expert help to get out of the water.
- Class VI These rapids are more vigorous and unpredictable compared to Class V rapids. They are extremely dangerous and should not be attempted by rafters.

### Experiment 1

There are many factors that affect the flow of a river. In this experiment you will create a river to find out what affects the rate of flow of the water.

#### Materials:

- 1 long (longer is best) plastic bin, baking pan, or paint pan
- clay (sand or soil covered with plastic wrap can also be used)
- pebbles
- 1 dish soap bottle filled with water (no soap)
- 1 small piece of Styrofoam or toothpick.

#### Steps for experiment:

1. Put the clay in the plastic bin and shape it into a river. There should be wide and narrow sections, different elevations, bends, and rocks. At the bottom of the river create a lake. Hint water always flows downhill.
2. Test the river by squirting water from the dish soap bottle at a constant stream starting at the top of the river.
3. Reshape the river if there is an area where the water is going over the banks.
4. Retest the river and repeat step 3 if needed.

5. After the river has a good flow, place the Styrofoam or toothpick at the top of the river.
6. Squirt water with a constant stream at the top of the river.
7. Observe the Styrofoam or toothpick as it travels down the river.

#### Questions

- Where did the Styrofoam or toothpick move fastest? What was the river feature(s) in this area? What would be the river classification(s) in this area?
- Where did the floater move slowest? What was the river feature(s) in this area? What would be the river classification(s) in this area?
- If you were river rafting, what features of the river would create rapids?
- If you were river rafting, what features of the river would create calm water?
- If you were river rafting, what area of the river would you find the most fun? Why?
- If you were river rafting, what area of the river would you find the least fun? Why?

#### Extension

Visit a local river or creek. Drop leaves or twigs into the water and observe the flow of water. Did the flow of water in the river/creek match that of your model?