



## ***Clouds***

### **Objectives**

1. Students will use books and other resources to research different clouds types.
2. Students will identify different cloud formations by their characteristics.
3. Students will use classification skills to create a reference chart.
4. Students will use symbols to identify cloud types.
5. Students will demonstrate an understanding of the relationship of clouds to weather by maintaining a classroom weather chart.

Age: Grade 3 - 5

### **Time Allowance:**

- 45 minute direct instruction, several class periods to construct final product

### **Materials:**

- Books on clouds (school library), magazines to cut up
- Markers and Paper
- Cotton or other craft materials
- Daily weather maps from local newspaper or Internet access.

### **Vocabulary:**

- Saturation - unable to hold more water
- Nimbus - rain cloud
- Stratus - sheetlike, layered
- Cumulus - piled up, accumulated
- Cirrus - high, thin, wispy, temperature below freezing, often called "mares' tails"

### Background information:

- Clouds are formed by cooling of the air below its saturation point. This can happen in several ways: Warm air may move over a cold surface and be cooled; Warm air is lifted by a heavier mass of cold air which pushes under it like a wedge; Air may be heated by contact with the Earth's warm surface. It expands, becomes lighter, and rises. As it rises, it cools.
- Clouds are first classified according to how they are formed. There are two basic types: (1) Clouds formed by rising air currents. These are piled up and puffy. They are called "cumulus," which means piled up or accumulated. (2) Clouds formed when a layer of air is cooled below the saturation point without vertical movement. These are in sheets or fog like layers. They are called "stratus", meaning sheetlike or layered.
- Clouds are further classified by altitude into four families: high, middle, low, and towering clouds. High clouds are almost entirely ice. Middle clouds are basically stratus or cumulus. Low clouds are responsible for most of the weather that occurs locally.

### Instruction:

- Begin by having students fold a regular sheet of paper into a 4 square.
- Ask students to do a quick sketch in one square of what the sky might look like just before a thunderstorm and label it "thunderstorm". Then use a different square to do the same for each of the following: a snowy day, a beautiful spring day, a cold winter day etc.
- Review the water cycle with students and discuss how clouds are formed. What makes for the different shapes and characteristics of clouds? Do all clouds produce rain? Why? Why not?
- Present a selection of books and materials for students to use to learn about clouds. (I would have children work with a partner to read, take notes, and sketch the different types of clouds. For younger children I would model this activity.) Explain that they will be making their own reference book to identify clouds on a daily basis.
- Allow students time and resources to conduct the investigation. Depending on the age and size of the class they may need more or less instruction on formatting. You might model the research by

organizing a poster format for reference. Explain, however, that a poster would be hard to carry around outside when making observations.

- Present a timeline for completion and grading scale.
- Create a classroom weather center (if you don't already have one) where assigned students record today's weather details. Use published newspaper weather reports to verify the accuracy of the recordings.

### Evaluation/Assessment

Students will be graded on the final product.

Cloud identifications should have:

1. A representative picture (can be drawn or magazine cut out)
2. A clear written description
3. The symbol that meteorologists use to identify that cloud type
4. The weather that is most commonly associated with this type of cloud.