

WILD, WILD WEATHER

UNIT OVERVIEW

Students tackle the mysteries and wonders of weather in this four part approach. The first section, "Weather Tracking Chart", involves students measuring and tracking the weather on a daily basis. In the second part, "Core Lessons", basic weather topics such as temperature, wind, pressure, clouds and precipitation are studied. Exciting activities integrated with student notes provide students with solid background information. The third part of the unit, "Enrichment Lessons" focuses on the more dramatic - examining tornadoes, hurricanes, thunderstorms and the greenhouse effect, again using student notes and activities. Six "Optional Activities" make up the fourth part of the unit.

PART I - WEATHER TRACKING CHART

Students keep track of the weather twice daily on a large-sized chart. Students begin the unit by measuring temperature and add other measurements to the chart as they are learned. Eventually students measure temperature, wind speed and direction, pressure, precipitation and cloud cover using student-made or teacher-made instruments, in most cases.

PART II - CORE LESSONS

This section covers basic weather topics by combining activities with student notes. The notes can be photocopied onto overhead projector transparencies or simply written on the board.

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| 1. | Solid Liquid Gas | - | Wacky Weather (Quiz) |
| 2. | Changes of State | - | Weather Why (Worksheet) |
| 3. | Temperature | - | Baby Food for Madness |
| 4. | Wind | - | Wind Vane |
| 5. | High And Low Pressure | - | Weather Pictograms |
| 6. | Clouds | - | Clouds in a Jar |
| 7. | Precipitation | - | Pop Bottle Rain Gauge |

PART III - ENRICHMENT LESSONS

Similar to Part II, this section uses overhead notes and closely related assignments to examine such things as tornadoes, hurricanes and thunderstorms. Teachers may use all these lessons or select a few depending on availability of time and suitability.

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| 8. | Thunderstorms | - | Popcorn Pilot (Creative Writing) |
| 9. | Tornadoes | - | Rating Tornadoes (Fujita Intensity Scale) |
| 10. | Hurricanes | - | Naming Hurricanes (Logic Puzzle) |
| 11. | Weather Forecasting | - | Weather Predicting |
| 12. | Greenhouse Effect | - | Letter To The Editor |
| 13. | Review | - | Matching Review |

PART IV - OPTIONAL ACTIVITIES

These, mostly fun activities, can be integrated into the unit as the teacher sees fit.

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| 1. | Weather Wordsearches | 4. | Weather Reporters |
| 2. | Crossword Puzzle | 5. | Movie Review - "Twister" |
| 3. | Humidity Measurement | 6. | Groundhog Day |

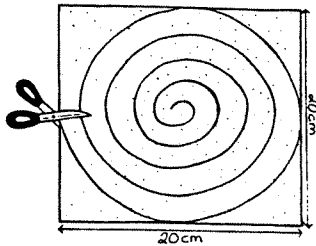
CORE LESSON #3 - TEMPERATURE AND THERMOMETERS

Student Objectives and Activities

- Students learn how temperature is a measurement of particle movement and how this relates to warm air rising. As well, students learn how thermometers work.
- Activities include "**Baby Food Jar Madness**" in which teams of students try to increase the temperature of a small jar of water by vigorous shaking.

Suggested Teaching Strategies

- Begin with notes about "Temperature" and "Why Does Warm Air Rise?".
- By cutting a coil out of paper, attaching it to a string and placing the coil over a toaster or hot light bulb, this will demonstrate how hot air rises. (This could also be a student activity rather than a teacher demonstration)



- Pointing out how cold air sinks when it comes out of a refrigerator freezer is a way to show the opposite effect.
- Show students how to read thermometers, being sure to emphasize the potential danger should the thermometer break spilling mercury.
- In the activity, "**Baby Food Jar Madness**", students are divided into groups of four with each group getting a thermometer and a baby food jar.
- The teacher supplies each group with the same amount of water taken from the same container so that the starting water temperature is consistent.
- The objective is to increase the temperature of the water during a five minute time period. (Students realize that shaking the jar will cause the particles to move faster thereby increasing the temperature. Playing rousing music during the activity adds to the fun.)



*** Note ***

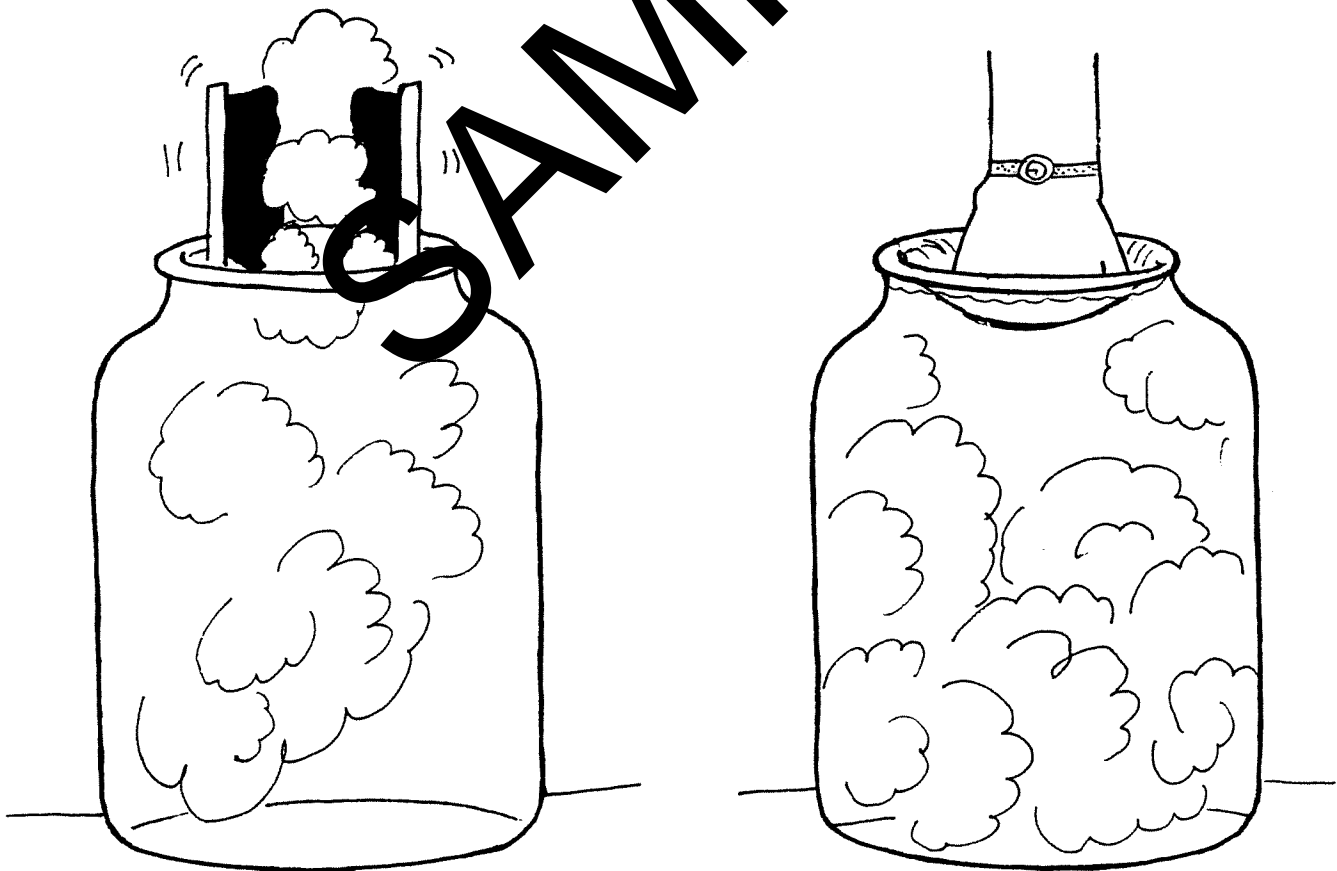
Teachers may choose to relate the true story of how the expression "freezing the balls off a brass monkey" came to be. Sailors used a device called a brass monkey to store cannon balls on deck. When it got too cold out, the brass plate contracted more than the cannon balls and the balls would fall off...and that's the truth!

CLOUD IN A JAR

NAME: _____

Instructions:

- Step 1** For this activity you will need a glass jar (pickles or cheeze-whiz jars work well), a balloon, an elastic band and some chalk dust.
- Step 2** Put 1 cm of warm water in the jar to cover up the bottom.
- Step 3** Put chalk dust in the jar.
- Step 4** Stretch the balloon over the mouth of the jar so that it will not come off. Secure with an elastic.
- Step 5** Gently punch the balloon and watch clouds appear when you take your hand away.



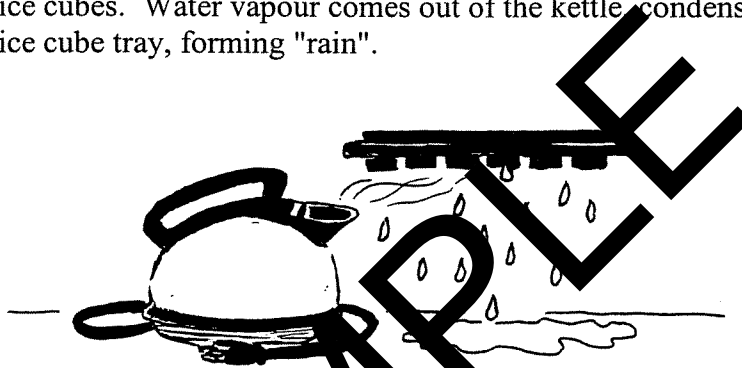
CORE LESSON #7 - PRECIPITATION

Student Objectives and Activities

- Students study rain, hail, snow and sleet and then understand how each forms.
- Students construct a "Pop Bottle Rain Gauge".

Suggested Teaching Strategies

- When giving the notes, remember to point out that rain drops are made of tiny droplets similar to the droplets that clouds are made of. The only difference is that a rain drop forms when millions of these droplets join together, while the droplets in a cloud stay suspended.
- Teachers can demonstrate rain formation quite well using a kettle, and a metal ice cube tray full of ice cubes. Water vapour comes out of the kettle, condenses on the underside of the cold ice cube tray, forming "rain".



- One everyday example of "cloud" forming occurs when a person breathes out warm, moist air from their lungs into cold air. As the air cools, water vapour condenses into a "cloud" and you can see your breath. (If it is warm outside and you can still see your breath, you have the same problem as Barney on the "Simpsons") Hot, moist air from car exhausts does a similar thing on a cold, winter days.
- Materials required for building the rain gauge are: straight-sided plastic pop bottle, duct tape, rocks, scissors, indelible marker and a ruler.
- Students in pairs, cut the top off the plastic bottle.
- Rocks or sand is placed in the bottom of the bottle so it does not blow over in the wind.
- The top of the bottle is turned upside-down, placed inside the bottle and taped down, so it acts as a funnel.

