



Weather Together

An Earth Science Unit for 4th Grade Classrooms

The 4-H *Weather Together* project engages learners in the exploration of weather through a variety of classroom-based and self-guided activities. The teaching strategy encourages inquiry-based learning, active use of science skills, and the use of creative and critical-thinking skills. Students explore the influence of sunlight, gravity, and moisture on the atmosphere, and learn that the interaction of these influences creates weather. Students learn to predict the level and intensity of these interactions on local weather conditions.

Weather Together activities are designed with the busy teacher in mind. This

five-week, five-lesson unit is designed to be taught in 60-minute intervals, with the potential to expand to 120-minutes if optional Digging Deeper and Going Beyond Activities are conducted. The book includes photo-ready transparencies, cut-and-assemble teaching posters, end-of-lesson review tests, read and do worksheets, a glossary of weather-related terms, and a shopping list of equipment and consumables.



Weather Together was developed by professional staff at The Ohio State University as part of the Science Alive 4-H School Enrichment program. For information on the availability of this unit in your classroom, contact your county's OSU Extension office.

Visit us online at www.ohio4h.org/sciencealive

Weather Together

Grade 4—Ohio Academic Content Standards and Indicators, 2007

Earth and Space Sciences

Earth Systems	1. Explain that air surrounds us, takes up space, moves around us as wind, and may be measured using barometric pressure.	X
	2. Identify how water exists in the air in different forms (e.g., in clouds, fog, rain, snow and hail).	X
	3. Investigate how water changes from one state to another (e.g., freezing, melting, condensation and evaporation).	X
	4. Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation and barometric pressure.	
	5. Record local weather information on a calendar or map and describe changes over a period of time (e.g., barometric pressure, temperature, precipitation symbols and cloud conditions).	X
	6. Trace how weather patterns generally move from west to east in the United States.	X
	7. Describe the weather which accompanies cumulus, cumulonimbus, cirrus and stratus clouds.	X
Processes That Shape Earth	8. Describe how wind, water and ice shape and reshape Earth's land surface by eroding rock and soil in some areas and depositing them in other areas producing characteristic landforms (e.g., dunes, deltas and glacial moraines).	
	9. Identify and describe how freezing, thawing and plant growth reshape the land surface by causing the weathering of rock.	
	10. Describe evidence of changes on Earth's surface in terms of slow processes (e.g., erosion, weathering, mountain building and deposition) and rapid processes (e.g. volcanic eruptions, earthquakes and landslides).	

Scientific Inquiry

Doing Scientific Inquiry	1. Select the appropriate tools and use relevant safety procedures to measure and record length, weight, volume, temperature and area in metric and English units.	X
	2. Analyze a series of events and/or simple daily or seasonal cycles, describe the patterns and infer the next likely occurrence.	X
	3. Develop, design and conduct safe, simple investigations or experiments to answer questions.	X
	4. Explain the importance of keeping conditions the same in an experiment.	X
	5. Describe how comparisons may not be fair when some conditions are not kept the same between experiments.	X
	6. Formulate instructions and communicate data in a manner that allows others to understand and repeat an investigation or experiment.	X

Scientific Ways of Knowing

Nature of Science	1. Differentiate fact from opinion and explain that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.	X
	2. Record the results and data from an investigation and make a reasonable explanation.	X
	3. Explain discrepancies in an investigation using evidence to support findings.	X
Ethical Practices	4. Explain why keeping records of observations and investigations is important.	X

Physical Sciences

Nature of Matter	1. Identify characteristics of a simple physical change (e.g., heating or cooling can change water from one state to another and the change is reversible).	X
	2. Identify characteristics of a simple chemical change. When a new material is made by combining two or more materials, it has chemical properties that are different from the original materials (e.g., burning paper, vinegar and baking soda).	X
	3. Describe objects by the properties of the materials from which they are made and that these properties can be used to separate or sort a group of objects (e.g., paper, glass, plastic and metal).	
	4. Explain that matter has different states (e.g., solid, liquid and gas) and that each state has distinct physical properties.	X
Nature of Energy	5. Compare ways the temperature of an object can be changed (e.g., rubbing, heating and bending of metal).	X

Science and Technology

Understanding Technology	1. Explain how technology from different areas (e.g., transportation, communication, nutrition, healthcare, agriculture, entertainment and manufacturing) has improved human lives.	X
	2. Investigate how technology and inventions change to meet peoples' needs and wants.	X
Abilities To Do Technological Design	3. Describe, illustrate and evaluate the design process used to solve a problem.	X

Ohio State University Extension embraces human diversity and is committed to ensuring that all educational programs conducted by OSU Extension are available to clientele on a nondiscriminatory basis without regard to race, color, age, gender identity or expression, disability, religion, sexual orientation, national origin, or veteran status.

Keith L. Smith, Associate Vice President for Agricultural Administration and Director, Ohio State University Extension.

TDD No. 800-589-8292 (Ohio only) or 614-292-1868