Ready-Ed Publications

Ebook Code: RENZ4045

PHOTOCOPY MASTERS

The Earth & Life Science Series

Weather

Science activities for 6 to 9 year olds

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Published by Ready-Ed Publications (2005) P.O. Box 276 Greenwood Perth W.A. 6024
Email: info@readyed.com.au Website: www.readyed.com.au

ISBN 1 86397 341 9

Contents

Teacher Information

The Earth and Life Sciences Series is designed to provide teachers of children in the 6 - 9 age range with a set of materials that will give students a more rounded and scientific understanding of their world and their place in it.

Student activities are directed towards meeting the requirements related to Science Education as set down in the document **Science - A Curriculum Profile for Australian Schools** *(Curriculum Corporation, 1994)*. This book, **Weather**, relates in particular to the conceptual strand of **Earth and Beyond**, at Levels 1 and 2 as indicated in the Profile document. In addition the activities in the book enable children to utilize some cognitive processes which are incorporated in the **Working Scientifically** strand of the curriculum.

These are:

❑ identifying, distinguishing, becoming aware of, observing;

❑ describing, naming features, recording, describing change, describing how, listing;

❑ describing patterns, connecting, linking, classifying, sorting, organising.

Specific Outcomes Related to The Working Scientifically Strand

Level 1 and Level 2 children working on activities in this book could be expected to realise these outcomes related to this strand:

❑ Students investigate to answer questions about data, and reach and communicate conclusions.

Specifically, students:

❑ Focus on problems in response to teacher generated questions or suggestions;

❑ Carry out sequential activities, and observe and describe their actions;

❑ Share observations;

❑ Identify some of the variables in a problem situation;

❑ Make simple non-standard measurements and records of data.

Specific Outcomes Related to The Earth and Beyond Strand

Level 1 and Level 2 children working on activities in this book could be expected to realise these outcomes related to this strand:

❑ Students make observations about the weather and identify local environment factors that influence daily life;

❑ Students understand how changes in weather conditions relate to clothing they wear and activities they undertake.

Structure of this Book

Books in this series are divided into two sections - the section which includes the **"Using Information"** activity pages and that containing **"General Activity"** pages.

Both sections include **Teachers' Notes** which focus on aspects of subsequent activity pages such as:

❑ learning outcomes of the relevant pages;

❑ materials required to complete the activity page;

❑ teaching suggestions for each page in the section.

"Using Information" Section

All student activity pages in this section are preceded by an **"Information Page"** - a set of notes that provides background knowledge to the activities presented on the worksheet. It is intended that these sheets are also photocopied for students and used by them as they attempt the activity page. It is envisaged that this approach will allow teachers to relate the class Science program to the Language program, through using these Information Pages as opportunities for Reading and Viewing activities. They are ideal for these purposes in that they require students to retell meanings and make simple interpretations for the purposes of completing the accompanying worksheet.

The text in these pages may be at a slightly more difficult level than that presented on the worksheets and further assistance is given by defining some key words or phrases. These are underlined and link to the **Explanations** section at the base of the page, which contains further definitive statements and explanations about the text.

It should be noted that not all the information that is required to complete worksheets is contained in these notes. In fact, children will benefit greatly from introductory discussions and idea sharing sessions about the worksheet in conjunction with the use of the Information Page.

General Activities Section

The activity pages in this section (headed ACTIVITY PAGE) utilize traditional print related reference materials for children to complete the set tasks on the sheets. It would be useful for a collection of appropriate books and materials to be assembled before commencing the unit so these can be accessed and used with as little disruption as possible. It is imperative, too, that these sheets are discussed thoroughly before children are set to work.

Lesson Notes

Pages 7 to 12

Content Area(s):

❑ earth science

Learning Outcomes:

In this section students:
❑ identify why weather is important to people.
❑ discover the four components of weather.
❑ investigate weather symbols.
❑ design their own weather symbols.
❑ identify different weather instruments.

Materials Required:

❑ Information Page
❑ pencil or pen

Time:

❑ approximately 20-35 minutes.

Background Information

Pages 7/8: What Makes The Weather

❑ Weather is very important to us because it can change many things about our lives - the clothes we wear, the way we travel, the way we spend our leisure time and even whether or not we can work. Sometimes the weather can be so bad that people's lives are in danger.
❑ Weather is made up of four things: temperature, air pressure, movement and moisture.
❑ Air pressure is the weight of the air on the earth.
❑ The wind direction is always measured by the direction the wind is coming from.

Pages 9/10: Weather Forecasting and Pages 11/12: Measuring the Weather

❑ Meteorologists study the weather using a range of instruments ranging from simple thermometers to sophisticated satellite image scanners and radar.
❑ Weather forecasting is important to people because bad weather conditions can cause harm to people, plants and animals through storms, hurricanes, snowfalls, blizzards and other severe weather patterns.
❑ Weather forecasting and reporting can help people prepare for bad weather conditions.
❑ Weather patterns are recorded using symbols that can show air pressure (isobars), cold and warm fronts, wind strength and direction, cloud cover and the likelihood of rain or snow.

What Makes The Weather?

The weather is simply the condition of the air around you. Weather is very important to people because it can affect many things in our lives - the clothes we wear, the way we travel, the way we spend our leisure time and even whether or not we can work.

Sometimes the weather can be so bad that people's lives are in danger.

Weather is also very important to plants and animals. Crops and food can be destroyed and the lives of animals lost because of bad weather.

Weather is made up of four things - temperature, air pressure, movement and moisture.

Temperature

The temperature is how hot or cold the air feels. In summer temperatures are quite high and in winter they are very low.

Air Pressure

Air pressure is the weight of the air on the earth. A high pressure is formed when the air is pushing down a lot. A high pressure usually brings fair weather. A low pressure is formed when the air is only pushing down a little. A low pressure usually brings bad weather.

Movement

Movement describes how fast the wind is blowing and in what direction.

Humidity and Moisture

Humidity is how much water is in the air. The amount of humidity and moisture affects the conditions of the air and the amount decides whether or not it will rain, hail or snow.

Explanations

Condition: The conditions describe what the air is like. The air may be described as windy, raining or fine.

Crops: Crops are grown by farmers to produce food for people. Sometimes very bad weather conditions can destroy a whole crop.

Direction: The direction of the wind is always where the wind is coming from and not which direction it is headed in. Some sports such as wind surfing or yachting depend on the direction of the wind.

Leisure: Leisure time is the time people have to do things like going on picnics and playing sport. It is when people have spare time after work and chores are done.

What Makes The Weather?

Use the Information Page on What Makes The Weather? to help you complete this page.

❑ Give five reasons why weather is so important to people.

1. .....
2. .....
3. .....
4. .....
5. .....

❑ Name and explain the four things that make up the weather?

1. _____ - .....

.....

2. _____ - .....

.....

3. _____ - .....

.....

4. _____ - .....

.....

Weather All Around

Describe the weather around you right now.

.....

.....

.....

In the box draw an activity that you could do outside in this weather.

Measuring the Weather

Many different instruments are used to measure the weather.

THERMOMETER

A thermometer measures the temperature. Most thermometers have mercury inside which expands when heated.

BAROMETER

A barometer measures changes in air pressure. Meteorologists can use a barometer to predict changes in the weather.

WEATHER BALLOONS

Weather balloons are released into the atmosphere. They carry instruments that measure the temperature, pressure, and humidity of the air.

RAIN GAUGE

A rain gauge measures how much rain has fallen. Rainfall is usually measured in centimetres.

WEATHER SATELLITES

Satellites carry television cameras that take pictures of the earth. The pictures show the pattern of clouds above the earth and large areas of snow and ice on the ground.

Meteorologists use the photographs to spot hurricanes and other dangerous storms. Satellites can also measure temperature, humidity and wind direction and speed.

EXPLANATIONS

Atmosphere: The atmosphere is the layer of air that surrounds the earth.

Barometer: You can make your own barometer with an empty jar, a balloon, a rubber band, a drinking straw and some cardboard. Here's how:

1. Stretch the balloon over the top of the jar and fasten with the rubber band.

2. Tape one end of the straw to the middle of the balloon. Cut the other end of the straw to make a point.

3. Tape a piece of cardboard to the jar. Mark where the end of the straw points.

4. If the straw moves up, it is showing a high pressure and the weather should be fine.

5. If the straw moves down, it shows a low pressure and the weather should be cloudy.

Mercury: Mercury is a metal that is sometimes called quicksilver. It is a liquid.

Hurricane: A severe tropical cyclone which usually starts in tropical ocean regions normally involves heavy rains and very strong winds. Sometimes the winds reach speeds of up to 120 kilometres per hour.

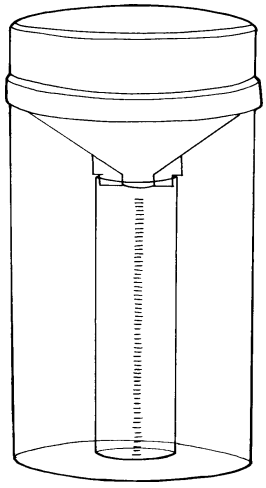
Rain gauge: It is very easy to make your own rain gauge from an empty plastic bottle and use it to measure how much rain falls each day.

Satellites: Satellites are sent up into space and they orbit or go around the earth. You can see the satellite pictures that are sent to earth on the television forecasts.

Measuring the Weather

Use the Information Page on Measuring the Weather to help you complete this page.

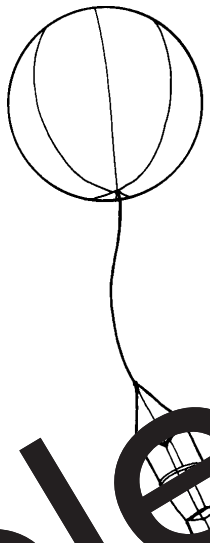
❑ Look at the weather instruments below. Label each one and describe what it measures.



Name: .....

What does it measure? .....

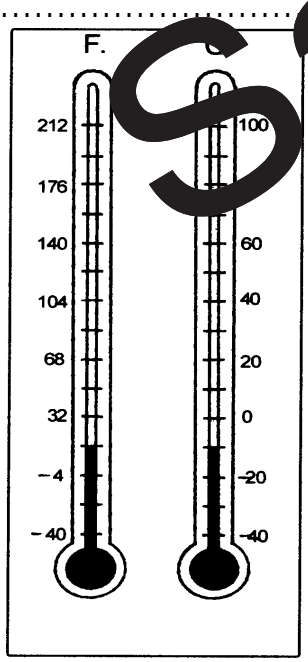
.....



Name: .....

What does it measure? .....

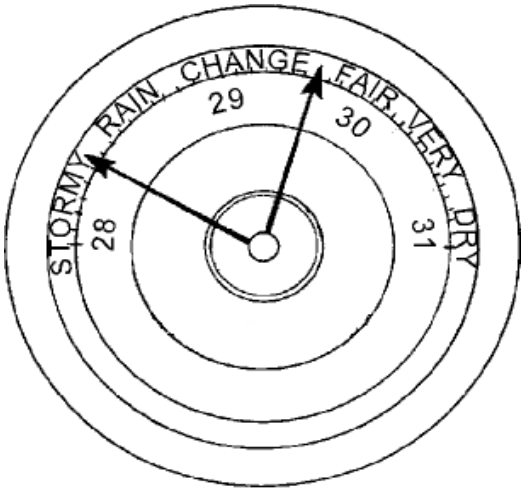
.....



Name: .....

What does it measure? .....

.....



Name: .....

What does it measure? .....

.....

The Water Cycle

Use the Information Page on The Water Cycle to help you complete this page.

❑ Fill in the words to tell the story of the water cycle.

1. The ..... dries up ..... from lakes and oceans.

2. The cool air changes the water vapour into tiny droplets of floating

.....

3. The droplets crowd together and form a .....

4. The wind blows the ..... towards the land.

5. The tiny droplets join together and fall to the .....

6. The rain soaks into the ground and collects in .....

7. The ..... that never ends has started again.

❑ Use the Information Page to help you label the diagram of the water cycle below.