Weather and Climate

Background Information:

Climate is the average weather over a long time period (30 years) for a particular region. The climate affects a number of environmental factors within the region including the type and growth of vegetation and wildlife.

Weather describes the short-term state of our atmosphere. This may include information about the air temperature, precipitation, air pressure and cloud cover. Our local weather changes daily due to the movement of air in our atmosphere. The Earth rotating around the sun causes seasonal changes giving us hotter summers and cooler winters.

Experiences and Outcomes:

I can investigate the relationship between climate and weather to be able to understand the causes of weather patterns within a selected climate zone.

SOC 3-12a

Transferable Skills:

Discussing topical science
Communicating
Data analysis
Working in a team
Taking accurate measurements
Reading scales
Verbal/Nonverbal communication
Active listening
Time management
Assertiveness skills

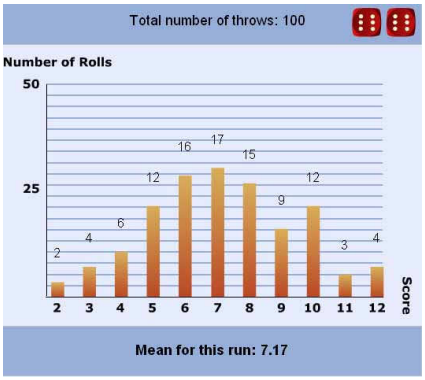
Materials:
Concept Cartoon – "Weather and Climate"

Suggested activities:

Difference between weather and climate

You will need: 2 dice
Tally chart for numbers 2-12
Graph paper

Method: In pairs, throw the two dice about 100 times and record the combined score shown each time. Draw a bar graph of the results.



Results: The results should show a smoothish distribution, with a score of 7 being most frequent. Ask each group to predict what their score will be if they throw the dice one more time – they can't. However, with one more throw, the mean of all the scores will stay about the same (about 7). In the same way, the weather may be very different from day to day but the climate, the weather we 'expect', stays about the same.

Discuss the difference between weather and climate – use the "Weather and Climate" concept cartoon to help with ideas.

Discuss how the weather in your area effects your daily decisions:

- What clothing do you wear?
- How do you get to school?
- What you have to eat?
- What sports you do?

Investigate how the climate in different parts of the world affects life:

Vegetation – how do plants get water, where do they grow, how long do they live?

Wildlife – do animals have fur, do they sleep at night or during the day, what do they drink/eat?

Humans – what do they wear, where do they live, when do they sleep etc

Create a poster that highlights the differences between weather and climate. Pupils could make individual posters and create an exhibit or work as a group to make a larger class display.

Extension Ideas:

Make your own Weather station (rain gauge, anemometer and barometer)
http://www.metlink.org/weather-climate-resources-teenagers/weather-experiments.html

Go outside and take some simple weather measurements:

a. Temperature
b. Wind speed
c. Humidity
d. Wind direction – see which way the clouds are moving
e. Cloud cover
f. Cloud type

Weather Reporting: In small groups give pupils 15 minutes to produce a 1 minute report on the weather today. They should use the measurements they have taken earlier in the lesson and you may like to video the report for a portfolio of evidence.

References/Resources:

Weather Projects: (The Royal Meteorological Society) follow the link from
http://www.metlink.org/observations-data.html

Weather instruments: (The Royal Meteorological Society)
http://www.metlink.org/weather-climate-resources-teenagers/weather-experiments.html

Make your own Weather Station: (Our Dynamic Earth)
http://www.dynamicearth.co.uk/kids/scienceexplored/Weather/Makeyourownweatherstation

What to Wear: (Yorkshire and Humber grid for learning)
http://www.yhgfl.net/Resources-CPD/Weather-Resources/What-to-Wear

Make your own Weather Station: (The Franklin Institute)
http://www.fi.edu/weather/todo/todo.html

Online dice animation: (Oxford University:
http://cpd.conted.ox.ac.uk/env/climatebasics/climate/interface.html
(select 'what can we predict')

Weather and Climate Concept Cartoon: