

Spring bulbs for Schools

National Curriculum Objectives and learning outcomes.

Outcomes	Objectives
<p><u>Science curriculum, investigative skills</u></p> <p><i>Planning an investigation</i></p> <ul style="list-style-type: none"> • Suggest ways of recording flowering times, height & temperatures, to discuss ideas and agree on a form of investigation. To discuss what SBS suggests. • Discuss predictions. What affect could warmer temperatures have on plant growth and flowering? • Decide what information should be collected. • Identify what can be controlled, in order that a fair test is carried out. That they are working as part of large experiment and that some factors must be kept constant in all schools. • Consider the equipment being used, e.g bulbs, rulers, thermometers, web data base, and reference materials. • Recognise the hazards. Large groups planting with trowels. What are dangers? How can they be prevented? 	<p>3. Investigative Skills </p> <p>Pupils should be taught:</p> <p>planning an investigation</p> <ol style="list-style-type: none"> 1. to turn ideas suggested to them, and their own ideas, into a form that can be investigated 2. that asking questions and using their knowledge and understanding of the context to anticipate what may happen, can be useful when planning what to do 3. to decide what information should be collected 4. that in situations where the factors can be identified and controlled, a fair test may be carried out 5. to consider what equipment or other resources to use, <i>e.g. reference material, books, CD-ROM</i> 6. to recognise the hazards and risks to themselves and others

Obtaining information

- Carry-out a test run using resources & equipment correctly. Decide how to control any risks. E.g breaking thermometers, standing on each others plants etc.
- Observe heights, temperature, and rain fall, number of flowers and labelling. Record appropriately.
- Check observations using a buddy system.
- Put data into the on-line software. Monitor changes.
- Make comparisons and identify any trends in the flower data.
- Use the results of their investigation to draw conclusions on flowering times.
- Relate what they have found to what we expected to find, and our warming climate.
- Review own work and suggest how data could be improved. Put any good suggestions on-line

obtaining information

7. to use equipment or other resources correctly, taking action to control risks
-  8. to make careful observations and measurements and record them appropriately
9. to check observations and measurements by repeating them, when this is appropriate
-  10. to use IT equipment and software to monitor changes

considering information

11. to make comparisons and to identify and describe trends or patterns in data
12. to use the results of their investigations to draw conclusions
13. to try to relate the outcomes of their investigation or their conclusions to their scientific knowledge and understanding
14. to review their work and suggest how their data could be improved.

Communicating science

- Report on project work clearly in speech and writing, to each other, other classes and the school.
- Use a range of methods to record and present information. Diagrams of the flowers, bulbs, drawings, graphs tables and charts.
- Use the SBS website to select and present flowering times across Wales. Compare with a 'bulb buddy' from another school.
- Measure height in cm, temp in deg C etc.

Handling scientific information

- Search for information from the SBS website. Search for information on spring flowering from suggested and other websites.
- Use information collected via the web to show examples of spring coming earlier. Decide which is reliable or unreliable.

2. Communication in Science

Pupils should be taught:

presenting scientific information

-  1. to report their work clearly in speech and writing using relevant scientific vocabulary
-  2. to use a range of methods, including diagrams, drawings, graphs, tables and charts, to record and present information in an appropriate and systematic manner
-  3. to use ICT to select and present a range of relevant information, when this is appropriate
-  4. to use standard measures and SI units, *e.g. metre, newton, appropriate to their work*

handling scientific information

-  5. to search for and access relevant scientific information, *e.g. in finding out about the solar system, or in using a key to identify an animal, using ICT to do so on some occasions*
-  6. to recognise that it is useful to present and consider scientific information in an appropriate form, making use of ICT to do so when appropriate.

Growth and nutrition

- Gain an understanding of what a plant needs to survive and grow, by planting a bulb and responsibly caring for it.
- Create a diagram of the plant highlighting the structure and functions of the leaf, roots, flower etc.
- Observe and record the main stages in the life cycle of own adopted bulb.

Reproduction

- Discuss that some insects are pollinators and others are pests and to record presence.
- Look at the seeds and question how they are transported.

3. Green Plants as Organisms

Pupils should be taught:

growth and nutrition

1. to investigate the effect on the growth of plants of changing their conditions, *e.g. light, water, temperature, nutrients, the available space, the growing medium*
2. that plants need light to produce food for growth, and the importance of the leaf in this process
3. that the root anchors the plant, and that water and nutrients are taken in through the root and transported through the stem to other parts of the plant

reproduction

4. the main stages in the life cycle of flowering plants, including pollination, seed production, seed dispersal and germination
5. about the process of pollination in flowering plants
6. how pollen and seeds can be transported, *e.g. by living things and by wind.*

Geography curriculum

Environmental change

- Explain how pollution is linked to changes in our seasons and what we can do to reduce the effects of climate change.
- Discuss that energy efficiency and renewable energy are ways of safeguarding the future.
- Look at the pros and cons of different types of energy e.g wind farms, solar power & nuclear. Role-play differing views.
- Formulate ideas on how to produce energy in the future.
- Make energy efficiency pledges.

3. Theme

When studying the theme of environmental change, pupils should be taught to:

1. identify ways in which people affect the environment, *e.g. quarrying, new roads, river/coastal/air pollution*
2. investigate ways in which people attempt to look after the present and safeguard the future environment through sustainable development, *e.g. seeking to prevent floods; conserving the landscape; National Parks; tree planting*
3. recognise that people have different views about changes made to the environment, *e.g. wind farm technology; new building/housing; open-cast mining.*

During their investigations, pupils should be given opportunities to:

-  4. begin formulating ideas and opinions about geographical issues and events, *e.g. listen to and learn from a range of voices and opinions on sustainable development issues*
-  5. understand the individual's responsibility for the environment, *e.g. visit a local park or woodland and identify a litter problem and how to solve it; participate in the school or home recycling programme; recognise the benefits of following the 'country code'.*

