

year 5

BIA Sience Term
by Term Scheme
of Work



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BRITISH ISLAMIC
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Term by Term Objectives

year 5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Summer	Living Things and Their Habitats The Art of Living			Living Things and Their Habitats The Art of Living			Animals Including Humans Life Explorers			Animals Including Humans Life Explorers		

(1) Subject to change. Please visit the website or call-in for regular updates.

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Term by Term Objectives

week	1	Term	Summer 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Sexual reproduction in flowering plants

Objectives

Dissect a flower and explore the fascinating world of flowering plant reproduction. Capture the key sexual structures of a flower and its life cycle in the form of a botanical drawing.

Science Objectives

i) Describe the life process of reproduction in some plants and animals.

Working Scientifically

- Record data and results of increasing complexity using scientific diagrams and labels.
- Identify scientific evidence that supports or refute ideas or arguments.



year 5

You Will Need

Provided Resources

- Botanical illustrations
- Art & questions
- Various flower diagrams
- Flower dissection instructions
- Guidance

Additional Resources

- Flowers for dissection
- Drawing materials
- Paper
- Potted plants



week	1	Term	Summer 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Sexual reproduction in flowering plants

Teaching and Activities

Teaching

- Dissect and label the parts of a flowering plant, including male and female structures.
- Record findings as an annotated botanical illustration of a flowering plant.
- Research the life cycle and reproduction of a flowering plant.

Activities

- Dissect and label the parts of a flower, identifying the male and female gametes.
- Make a detailed watercolour pencil drawing of a flowering plant in the style of a Linnaean illustration.
- Research the lifecycle and reproduction of their flowering plant.

Vocabulary

Gamete, stamen, stigma, carpel, pistil, pollination, germination, flowering, sexual reproduction, life cycle, seed, pollen, anther, filament, style, ovary, botanical illustration, dissection

Term by Term Objectives

week	2	Term	Summer 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Asexual reproduction in plants

Objectives

Investigate ways that plants reproduce asexually and continue to hone your botanical illustration skills. Have a go at growing new plants from a range of parent plant parts – you may be surprised at what will flourish!

Science Objectives

i) Describe the life process of reproduction in some plants and animals.

Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Identify scientific evidence that has been used to support or refute ideas or arguments.



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You Will Need

Provided Resources

- Examples of asexual reproduction botanical illustrations
- Plant images
- Investigation guidance

Additional Resources

- Art materials
- Investigation equipment
- Plant samples



week	2	Term	Summer 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Asexual reproduction in plants

Teaching and Activities

Teaching

- Learn about processes of natural and artificial asexual reproduction in plants.
- Sketch a detailed and annotated botanical illustration of asexual reproductive processes.
- Investigate artificial forms of asexual reproduction in plants.

Activities

- Draw botanical illustrations using watercolour pencils that show the life cycle of some plants that reproduce asexually.
- Identify and be able to explain the ways that plants can reproduce asexually, both naturally and artificially.
- Set up an investigation into artificial asexual reproduction in flowering plants.

Vocabulary

Corm, bulb, spores, cutting, fern, moss, liverwort, tubers, asexual, non-flowering, propagation, artificial, natural

Term by Term Objectives

week	3	Term	Spring 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Insect and amphibian lifecycles

Objectives

Watch some online footage of insect and amphibian lifecycles to help create your own life cycle illustrations for display. Set up an in-school habitat for your choice of insect and amphibian so that you can observe them over time.

Science Objectives

- i) Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
- ii) Describe the life process of reproduction in some plants and animals.

Working Scientifically

- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.



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You Will Need

Provided Resources

- Life cycle images
- Example life cycles
- Zoological illustrations
- Suggested links art materials

Additional Resources

- Art materials

Term by Term Objectives

week	3	Term	Spring 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Insect and amphibian lifecycles

Teaching and Activities

Teaching

- Learn about the lifecycle and reproduction of amphibians and insects.
- Sketch a detailed and annotated zoological illustration of the lifecycle and reproduction of an amphibian and insects.

Activities

- Draw zoological illustration of the lifecycles of two insects and an amphibian.
- Research the life cycle of insects and amphibians noting that they reproduce sexually.
- Use watercolour pencils to create texture and colour in their drawing.

Investigation - observing over time

- Observe and sketch insect and amphibian lifecycles for comparison.

Vocabulary

Life cycle, asexual & sexual reproduction, metamorphosis, amphibian, insect



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year 5

week

4

Term

Spring 1

Science Year 5 Living Things and Their Habitats : The Art of Living

Mammal and bird lifecycles

Objectives

Research mammalian and bird lifecycles for two of your local species and transform what you discover into beautiful natural history illustrations. Hone your research skills as you explore sexual reproduction in animals.

Science Objectives

- i) Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
- ii) Describe the life process of reproduction in some plants and animals.

Working Scientifically

- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

You Will Need

Provided Resources

- Young & adult mammals resource
- Bird & mammalian life cycles
- Bird life cycle challenge
- Hatchery links
- Illustration examples & guidance

Additional Resources

- Art materials



week	4	Term	Spring 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Mammal and bird lifecycles

Teaching and Activities

Teaching

- Learn about the lifecycle and reproduction of mammals and birds.
- Sketch a detailed and annotated zoological illustration of the lifecycle and reproduction of a mammal and bird.

Activities

- Identify a local mammal and bird species and research their life cycles online.
- Draw and annotate a life cycle zoological illustration for both mammal and bird lifecycles.
- Use watercolour pencils to create texture and colour in their drawing.

Investigation - analysing secondary sources

Research and sketch mammalian and bird life cycles for comparison.

Vocabulary

Mammal, bird, sexual reproduction, life cycle, gestation, foetus, sperm, egg, uterus, chick, egg, baby, adult

Term by Term Objectives

week	5	Term	Spring 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Life cycles from around the world

Objectives

Time to do some travelling! You will need to find some interesting and quirky animals and plants from around the world and explore their life cycles online. Make sure you find plenty of images so that you can create an informative but artistic representation of their life cycles in the form of scientific illustrations.

Science Objectives

- i) Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
- ii) Describe the life process of reproduction in some plants and animals.

Working Scientifically

- Record data and results of increasing complexity using scientific diagrams and labels.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

You Will Need

Provided Resources

- Unusual mammalian life cycles
- List of possible animals and plants to explore

Additional Resources

- Art materials

Term by Term Objectives



year 5

week	5	Term	Spring 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Life cycles from around the world

Teaching and Activities

Teaching

- Research the life cycles of a contrasting bird, insect, amphibian and plant.
- Record life cycles in the form of annotated scientific illustrations.

Activities

- Research the life cycles of an insect, amphibian, mammal, bird and plant that contrasts with those already studied.
- Create a series of annotated scientific illustrations that reflect the life cycles of the animals and plants they have researched.
- Use all skills developed so far for sketching and developing colour and texture using watercolour pencils.

Investigation - analysing secondary sources/pattern seeking

- Compare the lifecycles of mammals, amphibians, insects and birds (pattern seeking).
- Research reproduction in plants and animals.

Vocabulary

Life cycle, mammal, bird, amphibian, insect, reproduction

Term by Term Objectives



year 5

week	6	Term	Spring 1
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Science Year 5 Living Things and Their Habitats : The Art of Living

Meeting and becoming natural scientists

Objectives

Recognise your role as natural scientists during this block and hone your skills further today. Learn about some significant naturalists and animal behaviourists and create in-role monologues that explore the importance and impact of their work within the scientific community.

Science Objectives

- i) Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
- ii) Describe the life process of reproduction in some plants and animals.

Working Scientifically

- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

You Will Need

Provided Resources '

- Images of scientists

Term by Term Objectives



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week

6

Term

Spring 1

Science Year 5 Living Things and Their Habitats : The Art of Living

Meeting and becoming natural scientists

Teaching and Activities

Teaching

- Make observations, as a natural scientist would, recording data and reporting findings.
- Learn about some famous naturalists.

Activities

- Make observations, record findings and draw conclusions, as natural scientists.
- Research and present, in role, information on a significant naturalist.

Vocabulary

Natural scientist, naturalist, observation, conservation, endangered

week

7

Term

Spring 2

Science year 5 Life Explorers

Gestation gurus

Objectives

Are you ready for a whistle stop tour of the animal kingdom in a quest to become a gestation guru? How will you present your findings in an engaging and fun way?

Science Objectives

i) Describe the changes as humans develop to old age.

Working Scientifically

- Record data using tables, scatter graphs, bar and line graphs.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms.
- Identify scientific evidence that has been used to support or refute ideas or argument.

You Will Need

Provided Resources

- Who? What? When? resource
- Animal reproductive ages and offspring resource
- Gestation game
- Animal list & table
- Graphing resources
- Other considerations statements

Additional Resources

- Photo equipment & staff photos

Term by Term Objectives



year 5

week

7

Term

Spring 2

Science year 5 Changing Materials

Gestation gurus

Teaching and Activities

Teaching

- Represent scientific data in graph forms.
- Look for patterns in animal gestation periods and draw logical conclusions.

Activities

- Complete online research to find out the gestation periods of a range of animals (including humans).
- Create a visual comparison of gestation periods (including humans).
- Look for patterns in gestation periods.

Vocabulary

Scatter and line graphs, bar charts, causal relationships, support/refute, gestation, life cycle, sperm, egg, foetus

Term by Term Objectives



year 5

week

8

Term

Spring 2

Science year 5 Changing Materials

Foetal development detectives

Objectives

You now know a baby's gestation period, but what happens while it is a foetus? Explore the key stages of foetal development and present your research in the form of annotated diagrams.

Science Objectives

i) Describe the changes as humans develop to old age.

Working Scientifically

- Record data using scientific diagrams and labels.
- Identify scientific evidence that has been used to support or refute ideas or argument.

You Will Need

Provided Resources

- Foetal development statements
- Week by week development statements
- Fact or Myth?
- Examples of scientific diagrams

Additional Resources

- Foetus-sized fruit and veg (see list)

Term by Term Objectives



year 5

week

8

Term

Spring 2

Science year 5 Changing Materials

Foetal development detectives

Teaching and Activities

Teaching

- Learn about foetal development in humans.
- Represent foetal development information and data as a labelled scientific diagram and graph.

Activities

- Explore the key stages of human foetal development.
- Create a scientific diagram for the key stages of foetal development and an accompanying growth graph.
- Describe the process of foetal development within a scientific diagram.

Investigation - analysing secondary sources

- Create gestation period graphs for a range of animals.

Vocabulary

Scientific diagram, support/refute, gestation, life cycle, foetus, development, nutrition, uterus



week

9

Term

Spring 2

Science year 5 Changing Materials

Growth & change: Baby & child

Objectives

Are you ready to analyse your own growth data and demonstrate in graphs and charts how the human body develops and grows from birth to five? This section of your book will need some clear and well researched fact files.

Science Objectives

i) Describe the changes as humans develop to old age.

Working Scientifically

- Record data using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Report and present findings from enquiries, including conclusions, causal, relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or argument.

You Will Need

Provided Resources

- Milestones game
- Animal dependencies



week	9	Term	Spring 2
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Science year 5 Changing Materials

Growth & change: Baby & child

Teaching and Activities

Teaching

- Recognise and explore key milestones in baby and child development.
- Interpret and understand growth charts and plot personal data as a line graph.

Activities

- Complete online research and write fact-files based on growth data and research findings.
- Explore baby growth through statistics.
- Create growth graphs and charts based on their own growth records.

Investigation - analysing secondary sources/pattern seeking/observing over time

- Research and create an infographic on baby growth.
- Compare 'red books' and predict growth patterns.

Vocabulary

Baby, child, growth, line graph, comparison, development, centile, healthy, causal relationship

week

10

Term

Spring 2

Science year 5 Changing Materials

Growth & change: Adolescence & puberty

Teaching and Activities

Teaching

- Identify and understand the changes in the adolescent human body during puberty.
- Recognise and identify those changes during puberty that are gender specific.

Activities

- Explore the key physical and emotional changes during puberty in both boys and girls.
- Create a Q&A book section and glossary for puberty.
- Create a Venn diagram that shows changes in boys and girls at puberty.

Vocabulary

Adolescence, adolescent, puberty, teenager, reproduction (see also vocab list in resources)

Term by Term Objectives



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year 5

week

11

Term

Spring 2

Science year 5 Changing Materials

The chemistry kitchen

Objectives

Learn about some chemists who have invented very useful new materials and have fun creating new materials. Find out about brand new materials that are still in the development phase of their life.

Science Objectives

i) Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

You Will Need

Provided Resources

- Instructions for making goo
- Research guidance

Additional Resources

- Tablets/laptops and Internet access
- Liquid laundry starch
- PVA glue
- Mixing bowl
- Spoon
- Airtight containers

Term by Term Objectives



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year 5

week	11	Term	Spring 2
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Science year 5 Changing Materials

The chemistry kitchen

Teaching and Activities

Teaching

- Complete research on new materials and their uses.
- Apply knowledge of materials as they create a new substance.

Activities

- Create their own 'new' gooey material.
- Know about some famous materials inventors.
- Research and record information about new materials and their possible uses.

Investigation - exploring

- Make new materials.
- Investigate irreversible changes.

Vocabulary

Opinion/fact, variables, accuracy, precision, enquiry, new materials

Term by Term Objectives



year 5

week

12

Term

Spring 2

Science year 5 Changing Materials

Science fair - Audience testing

Objectives

Get your colourful lab coats on and invite some potential 'clients' to try out your education pack - share your Pinterest page and show them your investigating eggs video. Is your Education pack ready for the Science Museum or does it still need a few 'changes'?!

Science Objectives

- i) Compare and group together everyday materials on the basis of their properties, including their solubility and response to magnets.
- ii) Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
- iii) Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.
- iv) Demonstrate that dissolving, mixing and changes of state are reversible changes.
- v) Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

You Will Need

Additional Resources

- Range of investigation equipment (based on children's needs)
- Laptops/tablets and Internet access
- 'Lab coats'

Term by Term Objectives



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year 5

week

12

Term

Spring 2

Science year 5 Changing Materials

The rock star challenge

Teaching and Activities

Teaching

- Set up and run a range of materials investigations.
- Share knowledge and understanding of materials and the scientific process.

Activities

- Set up a series of materials investigations.
- Support visitors as they take part in a range of materials investigations.
- Showcase their education packs to an audience.

Investigation - pattern seeking

- Present findings in the form of an education pack for the Science Museum.

Vocabulary

Opinion/fact, variables, accuracy, precision, enquiry, solution, soluble, insoluble, new material, gives off gas, mixture, reversible, irreversible, evaporation, sieving, filtering, magnets, heating, burning, cooking, reaction