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| Lesson Number | Main Subject | Time | Practical | LO |
| 1 | micro organisms | 45mins |  | To name a fungi, virus and bacteria. To know differences between them. |
| 2 | Infections/Immunisations | 90mins | Agar plates, dirty/clean hands | To describe how disease spreads. To understand how the body defends itself against disease |
| 3 | Jenner | 45mins |  | To state how we can stop the spread of disease. |
| 4 | making bread | 90mins | Results from agar plates, making bread | To carry out a how science works experiment to test the affect of yeast in bread making. |
| 5 | predator and prey | 45mins |  | To understand what a predator and prey are. |
| 6 | food chains and pyramids of number | 90mins | Results from bread making. Dice. | To state what the key terms for food chains. |
| 7 | food webs | 45mins |  | To describe how food chains can interlink to make food webs |
| 8 | Why do elephants spray themselves in water? | 90mins | copper cans, rubber bands, kettles, paper towels | To design a how science works experiment to test how sweating helps to keep you cool. |
| 9 | toxins in web | 45mins |  | To be able to draw pyramid of number from food chains |
| 10 | Quadrats looking at organism on school field | 90mins | quadrats | To be able to collect data using a quadrat. |
| 11 | genetics | 45mins |  | genetic and environmental variation |
| 12 | genetics | 90mins | class height / construct histogram. |  |

genetic and environmental variation

Life on Mars

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| Lessons | Main Subject | Time | Practical | LO |
| 1 | Knowing what is in our universe | 45 mins |  | To understand know what a galaxy, star, solar system, planet are. |
| 2 | understand what is in our solar system | 90mins | Lesson outside to get scale of solar system | To understand the scales and distances are in our solar system are. |
| 3 | Design your own planet and aliens who live there. | 45 mins | Drawing activity to design a planet for life | To make links between planets and life forms on them |
| 4 | Mass and weight | 90mins | Newton scales, newton metres, masses | To understand how mass and weight are related. |
| 5 | Pressure | 45 mins | Large masses, outline footprints, trays of soft soil/mud, paper towels, rulers | To be able to calculate pressure. To describe how devices are designed to increase or decrease pressure. |
| 6 | Design an experiement to see how the height of the ball effects diameter of crator | 90mins | Demo sand trays, ball bearings, rulers | To design experiment to test how crators are formed using key terms  |
| Measuring crators | sand, ball bearings, rulers | To safely carry out practical To present data in a clear way |
| 7 | Days, nights, seasons | 45 mins | Globe, lamp |  |
| 8 | Phases of the moon |  | Shiny and dark ball |  |
| 9 | Eclipses | 45 mins | Lamp, balls |  |
| 10 | Satellites and orbits | 90mins |  | How they can be artificial and natural. Different uses of different orbits of satellites around the earth. |
| 11 | Different views on how the universe began | 45 mins | Plain paper, colours, stencils, library box of books or ICT room for internet access. | Booklet for presentation about the different theories and aspects of this topic. |
| 12 | Making a rocket | 90mins | making a rocket |  |

New Life

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| Lesson Numbers | Main subject | Time  | Practical | LO |
| 1 | When to Have Children | 45 mins | • Question Box• flip chart paper and marker pens | 1. Identify the issues surrounding having children. 2. Develop arguments for and against an issue. 3. Evaluate arguments. |
| 2 | Reproductive Systems and Cells | 90mins | • Question Box• plain paper (1 between 2/3)• 1 per student x “Diagram – Human Reproductive Organs” doc• text books with labelled male / female reproductive system drawings• the following if desired (could also be done from the slides):1 per student x “Key Word Match” doc• 1 per student x “Wordseach Reproductive Systems” doc• the following if desired (could also be done from the slides):1 per student x “Cells” doc• glue | 1. Identify parts of the human reproduction organs. 2. Explain the function of each part.3. Identify parts of animal and plant cells and know their function |
| 3 | Eggs and Sperm Cells | 45 mins | • Question Box• Graph paper• If preferred (for time or lower ability) 1 per student x “Diagrams Sperm & Eggs Cells”doc (4 sets of diagrams per page | 1. Identify how sperm and egg cells are adapted to their functions. 2. Explain why some animals produce a large number of sperm and egg cells3. Use bar charts to show patterns in data. |
| 4 | Intercourse and Fertilisation | 90mins | Question Box• 1 per student x “Questions on the Video” doc • 1 per student x “Worksheet Fertilisation” doc (or do via slide 11 instead)• 1 per student x “Blind Date” doc | 1. Describe fertilisation, where it happens and the journeys taken by the sperm and the egg to get there |
| 5 | Menstrual Cycle | 45 mins | • Question Box• 1 per student x “Line Diagram” doc• glue | 1. Describe what a period is.2. Describe the menstrual cycle.3. Explain why females have periods and identify when a female may get pregnant. |
| 6 | Pregnancy | 90mins | • Question Box• 1 x “Model Womb” sheet per student; and / or• 1 x “Stages of Pregnancy” sheet per student• acetate / clear plastic sheet / plastic pocket for amnion to be cut out of• coloured pencils• scissors• glue / scellotape• graph paper | 1. Describe how a foetus develops and is protected in the uterus.2. Identify the substances that pass between mother and foetus at the placenta.3. Illustrate the growth of the foetus by drawing a line graph. |
| 7 | Birth | 45 mins | • Question Box | 1. Identify the steps involved in birth.2. Describe long pregnancy lasts in humans and other animals.3. Explain how a new baby is fed and cared for. |
| 8 | Race to Make a Baby | 90mins | • Question Box• plain paper• coloured pencils• a variety of text book resources on reproduction for reference / research• rulers• ruled outline of 6 boxes on plain paper for lower ability• 1 per student x “Starting Out in Life missing word exercise” doc (if lower ability, or for timing) | 1. Describe and explain what happens when a sperm and egg meet to make a baby.2. Assess each others' work against a level ladder. |
| 9 | Growth, Repair and Reproduction | 45 mins | • Question Box• 1 per student x “Twins Diagram” doc if preferred to label rather than students draw.• 1 per student x “Twins Missing Word” doc if preferred rather than students write out – maybe ability or timing | 1. Describe why and how cells divide.2. Explain why a child is similar to both parents, but not identical3. Explain how identical twins and non identical twins are produced |
| 10 | Puberty | 90mins | • Question Box• flip chart paper (1 or 2 per group of 3/4 same sex students)• marker pens (per group)• 1 per student x “Male & Female changes” doc | 1. Describe the changes that occur during puberty2. Explain different rates of growth during the human life cycle. |

Biology

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| Lesson Number | Main Subject | Duration  | Practical | LO |
| 1 | Inheritance and selection | 1-2 lessons | cloning plants (spiderplant/other) | To describe how we get variation from sexual reproduction and not from asexual |
| 2 | fit and healthy | 1-2 lessons | Heart rate before, during and after sports. Food lables | To understand the effect of exercise on heart and breathing rate. How a balanced diet can keep us healthy |
| 3 | plants and photsynthesis | 1-2 lessons | Drawing a diagram of leaf structure to understand its function. Work on the equation for photosynthesis | how plants photosynthesis and how they are adapted to get the reactants they need to photosynthesis |
| 4 | plants for food | 1 lessons | research into different parts of plants we can eat. | To make links to food and how in might be processed |
| 5 | review lesson | 1 lessons | spider diagram/ poster of topic |  |

**OCR Gateway Science B Biology unit 1**

**Biology Unit 2 Understanding our environment**

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| LESSON  | 1 | 2 | 3 | 4 |
| **Lesson 1** ***Tangy Tastes*** | Where do we find acids are they all dangerous  | Strong and weak acids |  |  |
| **Lesson 2*****Crafty Cabbage*** | Making our own indicator using red cabbage | Testing the indicator on various substances (using dye on cloth samples) |  |  |
| **Lesson 3*****Colourful chemistry*** | What is the difference between litmus and universal indicator | Testing various household products with universal to get accurate pH |  |  |
| **Lesson 4*****Indigestion remedies*** | Designing a practical to test neutralisation | Conduct their experiment  | Evaluate results and write a conclusion | THIS WILL USUALLY RUN OVER 2 LESSONS |
| **Lesson 5*****Read the signs*** | What is a chemical reaction  | What evidence can we see that a reaction has occurred | To test hydrogen for the squeaky pop |  |
| **Lesson 6*****Keep it balanced*** | What are the major nutrient groups | Why do we need these nutrients | The good food plate |  |
| **Lesson 7*****Food for thought*** | How can we test for the various food groups | Using available tests on various foods |  |  |
| **Lesson 8*****Heading for a break down*** | What is digestion, know the route food takes | What happens during digestion | What is the job of digestive enzymes |  |
| **Lesson 9*****Revision/test*** |  |  |  |  |