Science Knowledge and Skills Coverage. (Year 5)

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| Content/  Knowledge | Living Things and Habitats  Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird.  Describe the life process of reproduction in some plants and animals. | Animals Including Humans  Describe the changes as humans develop from birth to old age. | Space  Describe the movement of the Earth and other planets, relative to the sun in the solar system. Describe the movement of the moon relative to the Earth. Describe the Sun, Earth and Moon as approximate spherical bodies. Use Earth rotation to explain day and night due to the apparent movement of the sun across the sky. | Properties of materials  Compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity and response to magnets.  Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.  Use knowledge of solid, liquid and gas to decide how mixtures might be separated including through filtering, sieving and evaporation.  Give reasons based on evidence from comparative tests for the particular uses of everyday materials including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes.  Explain that some changes result in the formation of new materials and this kind of change is not usually reversible including changes associated with burning and the action of acid on the bicarbonate of soda. | Forces  I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.  I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces  I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect |
| Scientific Enquiry | Icon  Description automatically generated    Identify and classify different life cycles.  Screen Clipping  I can use secondary sources to  research naturalists and  behaviouralists.  Screen ClippingReport and present findings from  Research.  Icon  Description automatically generatedI can plan and carry out a fair test  accurately.  Icon  Description automatically generated  I can look for patterns when  Considering gestation periods of  Animals.  Icon  Description automatically generated  Identify patterns that might be found in the natural environment. | Icon  Description automatically generated  Look for patterns in gestation periods.  Screen Clipping.  Notice changes over time  Use research and own subject  Screen Clippingknowledge to order stages of human  development.  I can research and use subject  knowledge to help others.  I can research and use subject  knowledge to help others.  Icon  Description automatically generated  Identify changes in the human body | Icon  Description automatically generated  Identify and classify planets  Identify and classify planets.  Screen Clipping  Observe changes over time  Screen ClippingUse research and secondary sources to find out about the moon.  Icon  Description automatically generatedLook for patterns in day light hours.  Icon  Description automatically generatedConduct a fair test where variables are  Controlled. | * Icon    Description automatically generatedIdentify different materials and classify   based on its properties.   * I can identify the property different   Materials based on whether it will dissolve.  Screen Clipping  I can make observations over time  I can compare how reversible and  Irreversible materials act when heated and  Icon  Description automatically generatedcooled.  I notice patterns in my results.  Screen ClippingI learn about famous scientists and what  major discoveries they have made. | Screen Clipping  Research the effects of gravity and Sir Isaacs equipment.  Icon  Description automatically generatedObserve over time how many times a pendulum swings.  Conduct a fair test to explore the  Icon  Description automatically generatedeffects of air resistance on a falling object.  Conduct a comparative test to investigate water resistance.  Conduct a fair test to investigate friction.  Icon  Description automatically generated  Look for patterns in my results. |
| Working Scientifically | Screen Clipping  Use oral and written forms to report  conclusions.      Screen Clipping.  Ask relevant questions and find ways  to answer them.    Screen Clipping  I can suggest next steps based on the  Weakest aspects of the enquiry.  Screen Clipping  Record my results using a bar chart  and explain the results.  Present data in a variety of different  ways to help answer my questions | Icon  Description automatically generated  Make predictions on gestation  Periods.    Record data using scatter graphs/ scient scientific diagrams  Screen Clipping  Make careful observations as we grow  older  Screen Clipping    Evaluate my learning | Screen ClippingRaise questions and suggest reasons for similarities and differences.  Screen ClippingUse measurement to represent planets in a model  Screen Clipping    Use a model to discuss, communicate  and justify scientific ideas using scientific vocabulary.  Screen Clipping  Present results in a variety of ways to  Answer a question. Record my work using scientific  diagrams and labels. | Icon  Description automatically generated  I can make predictions about which materials are soluble and insoluble.  Screen Clipping  I can use scientific language and illustrations to discuss, communicate and justify ideas.  Icon  Description automatically generated  I can plan my own test based on how materials react with one another.  Screen Clipping    I can record results in a table | Screen ClippingObserve different forces and measure the force using different equipment.  Icon  Description automatically generated    Set up a test to change the speed of a pendulum.  Screen Clipping  Interpret and communicate results from data using scientific vocabulary  Icon  Description automatically generated  Plan different types of enquiry to answer a question. |
| Ideas | 1. Recap previous learning- animal classification and lifecycles. Classification drama. Classify animals. Draw a lifecycle. 2. Life cycles of different organisms. Life cycle drama. Comparing lifecycles using a diagram. 3. Find out about the work of Jane Goodall and David Attenborough. Observe animals and take notes in a table. 4. Pollination vs fertilisation. Recap on pollination. Pollination drama recap. Sexual and asexual reproduction. School group survey for different types of plants.   Children research how different plants reproduce.   1. Investigate how to grow new plants from different parts of the parent plant.   Children carry out a fair test to grow their  own plant.  6. How do animals reproduce? Investigate  different gestation periods and make top  Trumps. Assessment test. | 1. Recap body systems, teeth and animals.   Research gestation periods of animals.  2. Lifecycle of a human. Use fruits and vegetables as models for foetus development. Plot developmental stages on line graph.  3. Observe how we change as we age. Developmental milestones. Order what happens at different stages.  4. Puberty and changes on the body.  5. Looking after mental health and design a poster.  6. Relaxation techniques, complete poster and end of unit test. | 1. Recap previous learning on light and shadow.   Read Curiosity, ordering planets and looking at relative sizes through Playdough planets.   1. Investigation into how big each planet is using fruit and veg. Creating a solar system in my pocket. 2. Investigate phases of the moon through drama and Oreo moon phases. Children draw the 8 moon phases. 3. Children use a model to investigate the relationship between the sun, moon and earth. Ext investigate how their weight would change on different planets. 4. Investigate day and night and why different parts of the world have day at a different time. 5. Look at what astronauts do and famous astronauts. What causes craters on the moon? Chn learn about asteroids and comets and plan their own crater experiment. | 1. Recap previous learning on materials and forces.   Investigate materials and their properties through a ‘Cinderella’ materials problem solving.  2. Understand the difference between melting and  Dissolving, soluble and insoluble. Children will conduct a test to find out which materials are soluble, and which are not.  3. Children will investigate if they can recover a substance from a solution by heating materials.  4. Children will learn about reversible changes by changing milk into butter.  5. Children will recap irreversible and reversible materials then look at changes resulting in new materials through various investigations such as tea bag rockets, bicarb balloons, pop rockets.  6. Children will find out about Spencer Silver and Arthur Fry and the invention of the post it note. Children will use their findings to make their own glue. Assessment test. | 1. Recap previous learning- forces.   Find out about Sir Isaac Newton.  Learn about gravity and different forces by investigating different forces applied.  2. Focus on gravity and space. Explore difference between weight and mass.  Focus on Galileo and investigate time using pendulums.  3. Investigate air resistance. Investigate effects of air resistance with parachutes.  4. Investigation into water resistance.  5. Investigate friction through slippy shoes investigation.  6. Investigate levers, pulleys and gears through a range of activities. |