

**SUBJECT: Science**

| YEAR GROUP | Year 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| Rationale  | <p>The year seven science course at St. Edmund Arrowsmith aims to build on the science content pupils have studied at key stage two. Pupils will increase their knowledge and understanding of the subject while also developing their practical skills. This will help pupils to develop firm foundations in biology, chemistry and physics.</p> <p>Pupils will carry out investigations, write scientifically and explore the fundamental areas of science which include cells, reproduction, photosynthesis, states of matter, atoms, elements, forces and energy</p>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|            | Autumn Term 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Autumn Term 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Spring Term 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Spring Term 2 | Summer Term 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Summer Term 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Topic/Unit | Chemistry Unit 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Biology Unit 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Physics Unit 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               | Chemistry Unit 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Biology Unit 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Knowledge  | 1 – How do we write symbols for elements?<br>2 – What are the common properties of metals and non-metals?<br>3 – What are elements made of?<br>4 – What do the numbers on the periodic table tell us?<br>5 - What are compounds and how are they formed?<br>6 – What does a chemical formula tell us?<br>7 – What happens to mass in a chemical reaction?<br>8 - What is combustion and what are the products of burning fuels?<br>9 - What is the effect of oxygen on combustion?<br>10 – What is produced when metals burn in air?<br>11 – How do we test for an unknown gas?<br>12 - What is thermal decomposition? | 1 – What are the life processes?<br>2 – What is inside animal cells?<br>3 – How do substances move into and out of cells?<br>4 – Do all animal cells look the same?<br>5 - What is the difference between cells, tissues and organs?<br>6 – What happens in the breathing system?<br>7 – How does exercise affect your breathing and why?<br>8 - What happens in the digestive system?<br>9 - What are digestive enzymes?<br>10 - What happens in photosynthesis?<br>11 – Are plant cells the same as animal cells?<br>12 – How can we use a microscope to see plant cells? | 1 – What are the energy stores?<br>2 – What happens in an energy transfer?<br>3 – What is the difference between solids, liquids and gases?<br>4 – What happens to substances when they are heated?<br>5 - What happens to substances when they are cooled?<br>6 – What can a force do?<br>7 – How can speed be calculated?<br>8 – What is a distance time graph?<br>9 – What is a non-contact force?<br>10 - What is earth's place in the solar system?<br>11 – How do forces cause a turn?<br>12 – What is an elastic object?<br>13 – How do forces cause pressure? |               | 1 – What are the states of matter?<br>2 – How can we change the state of matter?<br>3 – What are pure substances and mixtures?<br>4 – How do you separate a solid from a liquid?<br>5 - How do you separate a soluble solid from a liquid?<br>6 – How do you separate a mixture of liquids?<br>7 – How do you separate a mixture of inks?<br>8 - What is earth's structure and atmosphere?<br>9 - What is global warming?<br>10 - What are sedimentary rocks?<br>11 – What are igneous and metamorphic rocks?<br>12 - What happens in the rock cycle?<br>13 - What is the difference between composites, polymers and ceramics? | 1 – Why is your diet important?<br>2 – What happens if we do not eat the right amounts of different foods?<br>3 – How do our skeletons and muscles move our bodies?<br>4 – What are the parts of the male and female reproductive systems?<br>5 - What changes happen to the body during puberty?<br>6 – What happens during fertilisation?<br>7 – What happens during pregnancy and birth?<br>8 – What are the effects of recreational drugs on the body?<br>9 - How does smoking affect the body?<br>10 - How do plants reproduce?<br>11 - How and why are plant seeds dispersed?<br>12 – How are features passed on from parents to children?<br>13 - What is the difference between genes, chromosomes and DNA? |



|                               | Autumn Term 1                                                                                                                                                                                                                                                                                                                                                                                                   | Autumn Term 2                                                                                                                                                                                                                                                                                               | Spring Term 1                                                                                                                                                                                                                                                 | Spring Term 2 | Summer Term 1                                                                                                                                                                                                                                                                                                                                                                                  | Summer Term 2                                                                                                                                                                                                                                                                                                                                                                   |
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| <b>Skills</b>                 | Pupils will be given the opportunity to investigate burning reactions, the conservation of mass in chemical reactions and how to identify unknown gases. Pupils will be introduced to the concept of experimental variables and begin to develop their working scientifically skills through the completion of practical experiments. Pupils will begin to use the key terms related to working scientifically. | Pupils will be given the opportunity to investigate the differences between animal and plant cells, how exercise affects your breathing and how microscopes are used. Pupils will continue to develop their working scientifically skills and their use of the key terms related to working scientifically. | Pupils will be given the opportunity to investigate changes of state, energy transfers and how speed can be calculated. Pupils will continue to develop their working scientifically skills and their use of the key terms related to working scientifically. |               | Pupils will be given the opportunity to investigate how to separate different mixtures using filtration, crystallisation and chromatography. Pupils will investigate how many dyes different inks contain and be expected to identify the key variables. Pupils will continue to develop their working scientifically skills and their use of the key terms related to working scientifically. | Pupils will be given the opportunity to investigate plant reproduction and the force exerted by different muscles. Pupils will investigate the effect of seed arm length on seed dispersal and be expected to identify the key variables. Pupils will continue to develop their working scientifically skills and their use of the key terms related to working scientifically. |
|                               | Autumn Term 1                                                                                                                                                                                                                                                                                                                                                                                                   | Autumn Term 2                                                                                                                                                                                                                                                                                               | Spring Term 1                                                                                                                                                                                                                                                 | Spring Term 2 | Summer Term 1                                                                                                                                                                                                                                                                                                                                                                                  | Summer Term 2                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Assessments: Formative</b> | Formative assessment will regularly take place during science lessons. Once a fortnight pupils will complete a learning check activity based on previously taught content. This activity will be teacher assessed and feedback will be provided.                                                                                                                                                                |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                               |               |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Assessments: Summative</b> |                                                                                                                                                                                                                                                                                                                                                                                                                 | Assessment Window 1<br>- Assessing Chemistry Unit 1                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                               |               | Assessment Window 2 (KS3 Assessment Week)<br>- Assessing Chemistry unit 1<br>Chemistry unit 2<br>Biology unit 1<br>Physics unit 1                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Homework</b>               | Pupils in year seven will be set one piece of Sparx Science homework each week. To help support pupils to develop a good routine in relation to home learning this science homework will always be set on a Friday and due in the following Thursday. Pupils are expected to spend approximately 30 minutes on each piece of Sparx Science homework.                                                            |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                               |               |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                 |