PDST
Professional Development Service for Teachers | An tSeirbhís um Fhorbairt Ghairmiúil do Mhúinteoirí

Junior Certificate School Programme
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Supporting teachers and students within the Junior Certificate School Programme

Draft Junior Cycle Science Statements

The following pages contain draft JCSP statements developed with input from a number of practicing Science teachers in JCSP schools. They are offered as one possible model that teachers may use to approach the teaching, learning and assessment of the learning outcomes in the Curriculum Specification for Junior Cycle Science. They will be adjusted over time based on feedback from teachers in JCSP schools.

The Science specification may be accessed in full at www.curriculumonline.ie . In addition, professional supports for teaching Junior Cycle Science may be accessed through the Science section of the Junior Cycle for Teachers (JCT) website, at www.jct.ie/science/science

It is important to note that the statements below offer a sample approach for the creation of Junior Cycle Science statements. They have been drafted from the unifying strand, 'The Nature of Science' strand. They do not cover all of the learning outcomes which are expected to be taught in the new Junior Cycle course. It is envisaged that students would be given opportunities to experience rich learning through engaging with aspects of the Nature of Science learning outcomes in all of their classes.

Teachers are encouraged to engage with these statements as a possible approach to creating Science statements for their own students. Students' teachers are best placed to develop statements which will support their own students in their own particular class and school context.

December 2017

The PDST is funded by the Teacher Education Section of the Department of Education and Skills & managed by the Dublin West Education Centre

I can investigate in Science

Science

Statement code no. SJC1

Student: **Class:**

I can:

I have begun ☐☐☐ | I am working on this ☐☐☐ | I can ☐☐☐

This has been demonstrated by my ability to:

1.	Design and carry out an investigation using the scientific method	☐	☐ ☐
2.	Understand that a scientist can investigate through experiments and research	☐	☐ ☐
3.	Understand that a scientist should ask a question first before they commence their work	☐	☐ ☐
4.	Make a hypothesis (a temporary scientific explanation) that can be tested	☐	☐ ☐
5.	Recognise that testing my hypothesis involves a number of steps, through researching, conducting an experiment, calculating, analysing, evaluating reporting and concluding	☐	☐ ☐
6.	Explain that there are different ways of testing the same hypothesis	☐	☐ ☐
7.	Design and carry out an investigation to test my hypothesis	☐	☐ ☐
8.	Indicate the risks involved in carrying out my investigation and describe the steps that can be taken to reduce the risks	☐	☐ ☐
9.	Listen to the views of other group members when planning out an investigation	☐	☐ ☐
10.	Follow the safety procedures necessary to avoid any incidents	☐	☐ ☐
11.	Use the required equipment in a correct manner in the science laboratory	☐	☐ ☐

Reflecting on my learning...

One thing I did well...

1.

2.

One thing that I might improve...

1.

2.

I really enjoyed.....because...

1.

2.

I can collect Data

Science

Statement code no. SJC2

Student: **Class:**

I can:

I have begun ▢▢▢ | I am working on this ▢▢▢ | I can ▢▢▢

This has been demonstrated by my ability to:

1. Understand that all science involves evidence	▢▢▢
2. Understand that I must be able to test my hypothesis	▢▢▢
3. Describe how I collected data in a reliable and accurate manner when investigating by experiment	▢▢▢
4. Create a research question from a topic I am researching	▢▢▢
5. Reference correctly the work carried out by others	▢▢▢
6. State the difference between good and bad sources of information	▢▢▢
7. Use my skills to find trustworthy information from many sources	▢▢▢
8. Use a variety of sources such as internet, newspapers, scientific journals, books, etc. to find trustworthy information	▢▢▢
9. Measure the quantity (or amount) of something and the quality (or kind) of something in my investigations and record these as data	▢▢▢
10. Record all results accurately	▢▢▢
11. Record results using different methods	▢▢▢
12. Record my data in a table	▢▢▢

Reflecting on my learning...

One thing I did well...

1.

2.

One thing that I might improve...

1.

2.

I really enjoyed.....because...

1.

2.

I can communicate in Science

Science

Statement code no. SJC3

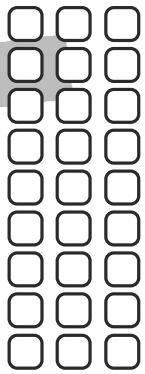
Student: **Class:**

I can:

I have begun ☐☐☐ | I am working on this ☐☐☐ | I can ☐☐☐

This has been demonstrated by my ability to:

1. Draw a graph from the data provided
2. Carry out calculations
3. Use the correct units in my answers
4. Organise my data and present my results in a way that is easy to understand
5. Explain what is meant by the term outlier on a graph
6. See a pattern/trend in a graph
7. Check for reliable sources of data within media
8. Present my research investigation with keywords
9. Explain my findings



Reflecting on my learning...

One thing I did well...

1.

2.

One thing that I might improve...

1.

2.

I really enjoyed.....because...

1.

2.

I can demonstrate knowledge and understanding

Science

Statement code no. SJC4

Student: **Class:**

I can:

I have begun ☐☐☐ | I am working on this ☐☐☐ | I can ☐☐☐

This has been demonstrated by my ability to:

1. List the strengths of an investigation ☐☐☐
2. Recognise what I need to change in order to improve my investigation ☐☐☐
3. Explain how reliable and accurate my results are ☐☐☐
4. Answer questions about my investigation ☐☐☐
5. Go over my results and make a conclusion ☐☐☐
6. Explain why unusual results such as outliers occur ☐☐☐
7. Decide if my hypothesis has/has not been supported in the investigation ☐☐☐
8. Understand the work of a scientist ☐☐☐
9. Understand that science research and scientific discovery help make the world around me better ☐☐☐
10. Form an opinion based on evidence from my research ☐☐☐
11. Give research evidence and explain how and why it is suitable ☐☐☐
12. Make a connection between the conclusions of my investigation and the world around me ☐☐☐
13. Give suitable reasons, based on evidence, to support/justify my opinion ☐☐☐

Reflecting on my learning...

One thing I did well...

1.

2.

One thing that I might improve...

1.

2.

I really enjoyed.....because...

1.

2.

Science

At Junior Certificate level the student can:

1 **The Non-Living Environment** ▢▢▢
Describe the characteristics and structures of different materials and explain how they change under different conditions

2 **The Living Environment** ▢▢▢
Describe a range of plant and animal life and explain their connection with the wider environment

3 **The Human Body** ▢▢▢
Describe some of the major systems of the human body and explain their links with health

4 **Energy and Control** ▢▢▢
Name sources of energy and describe ways in which energy can be transferred and used

5 **Human Biology** ▢▢▢
Describe some of the major systems of the human body and have an understanding of food and health

6 **Physics 1** ▢▢▢
Understand the concept of measurement of Force, Energy and Heat

7 **Chemistry 1** ▢▢▢
Recognise different substances and carry out separation techniques

8 **Chemistry 2** ▢▢▢
Understand some of the key principles of the chemistry of air and water

9 **Plant Biology** ▢▢▢
Understand and identify the structure, functions and processes of a typical flowering plant

10 **Physics 2** ▢▢▢
Understand the concepts of magnetism, electrical conduction and the main properties of light

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Science

At Junior Certificate level I can:

11 Chemistry 3
Recognise different substances and carry out separation techniques

12. Chemistry 4
Recognise different substances and carry out separation techniques

13. Chemistry 5
Recognise different substances and carry out separation techniques

14 Environmental Biology
Describe a range of plant and animal life and explain their connection with the wider environment

15 Human Biology 2
Describe some of the major systems of the human body and explain their links with health

16 Human Biology 3
Describe some of the major systems of the human body and explain their links with health

17 Human Biology 4
Describe some of the major systems of the human body and explain their links with health

18 Plant Biology
Understand and identify the structure, functions and processes of a typical flowering plant

19 Physics 3
Understand the concepts of Energy and Energy Conversions

20 Physics 4
Understand the concepts of Heat, Light and Sound

21 Physics 5
Understand the concepts of Magnetism , Electricity and Electronics

The Non-Living Environment

Science

Statement Code no: 1

Student: Class:

At Junior Certificate level the student can:

Describe the characteristics and structures of different materials and explain how they change under different conditions

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Follow instructions promptly and carefully	☐☐☐
2	Do an experiment to change ice to water, water to ice, water to steam and steam to water	☐☐☐
3	Draw a labelled diagram of a thermometer. Use a thermometer to measure and record	☐☐☐
4	Do an experiment to find suitable liquids which will dissolve different solids	☐☐☐
5	Separate mixtures using filtration, evaporation and distillation	☐☐☐
6	Name some common acids, alkalis and neutral substances and use simple indicators to show the difference between them	☐☐☐
7	Place some household liquids correctly on a pH chart	☐☐☐
8	Name six different metals. Describe them and say how each one is used in everyday life	☐☐☐
9	Draw the fire triangle. Name the different fire types and say how to extinguish each type. List the safety rules for dealing with fire	☐☐☐
10	Draw and label a diagram of the water cycle. Describe how water is treated to make it safe for drinking	

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

The Living Environment

Science

Statement Code no: 2

Student: Class:

At Junior Certificate level the student can:

Describe a range of plant and animal life and explain their connection with the wider environment

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets: Select any 10 objectives to work on

– This has been demonstrated by your ability to:

1	Name and recognise the leaves of five common Irish trees and five common flowers	☐☐☐
2	Draw and label the parts on a simple plant: stem, root, leaf and flower	☐☐☐
3	Describe the functions of a stem, root, leaf and flower	☐☐☐
4	Explain how leaves make food and discuss the importance of this	☐☐☐
5	Germinate some seeds and describe what happens during the germination	☐☐☐
6	Name and identify five common creatures from any two of the following groups: birds, insects, domestic animals and wild animals	☐☐☐
7	Name the different types of habitat of three different Irish plants and animals, giving examples of each	☐☐☐
8	Explain how a plant or animal is adapted to its habitat	☐☐☐
9	Name some of the plants and animals which provide food for humans and are important in agriculture, business, medicine and leisure	☐☐☐
10	Explain the idea of food chains, giving examples of where different animals and plants fit in	☐☐☐
11	List and give the function of different soil parts. Do two simple experiments on soil	☐☐☐
12	Suggest ways in which humans can improve or harm the environment and suggest some ways of protecting it	☐☐☐
13	Name the three types of micro-organism. State the main uses and/or harmful effects of bacteria, viruses and fungi to living things	☐☐☐
14	Discuss risks and benefits of vaccination on small babies	☐☐☐
15	Visit a habitat, make observations and measurements, collect samples and report your findings	☐☐☐
16	Use the microscope correctly to examine a number of samples	☐☐☐
17	Do one experiment to show how micro-organisms are used in the making of foods such as: yoghurt, beer, bread, cheese etc.	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

The Human Body

Science

Statement Code no: 3

Student: Class:

At Junior Certificate level the student can:

Describe some of the major systems of the human body and explain their links with health

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Measure one of the following: heartbeat, lung capacity, body temperature, pulse before and after activity; or show the presence of carbon dioxide in exhaled breath	▢▢▢
2	Name each of the five sense organs and give their functions	▢▢▢
3	Describe how the skeleton and muscles support, protect and move the body	▢▢▢
4	Understand the importance of the breathing system, its parts and their functions	▢▢▢
5	Name the major parts of the breathing system	▢▢▢
6	Label a diagram of the heart and say how it works	▢▢▢
7	Explain the functions of blood and blood vessels	▢▢▢
8	Label a diagram of the kidneys and explain how they work	▢▢▢
9	Explain what a balanced diet is and its importance for physical health	▢▢▢
10	Name and list some good sources of the five food types	▢▢▢
11	Explain the effects of lifestyle on physical health (smoking, drugs etc.)	▢▢▢
12	Discuss risks and benefits of vaccination on small babies against diseases such as polio, whooping cough, measles etc.	▢▢▢

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Energy and Control

Science

Statement Code no: 4

Student: Class:

At Junior Certificate level the student can:

Name sources of energy and describe ways in which energy can be transferred and used

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Explain the difference between renewable and non-renewable sources of energy. Give three examples of each	☐☐☐
2	Identify ways in which energy is used in the home, explain how they work and say which (if any) is used in your home for heating	☐☐☐
3	Name three ways in which heat can be transferred, explain how they work and give examples of each	☐☐☐
4	Suggest ways of conserving energy in the home. Describe the different methods of using insulation	☐☐☐
5	Study a copy of an ESB bill and show how to calculate the total bill amount	
6	Set a simple circuit showing the flow of electricity	☐☐☐
7	Wire a plug. Make a labelled sketch of the inside of a wired plug showing the correct colours of wire	☐☐☐
8	Name two metals that are attracted by magnets and two that are not. Describe what happens when two magnets are brought near each other. Draw a compass and explain how it works	☐☐☐
9	Do an experiment to show that light travels in a straight line	☐☐☐
10	Recognise and understand the dangers shown by the basic hazard warning symbols	☐☐☐
11	Handle safely all equipment and substances	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Human Biology

Science

Statement Code no: 5

Student: Class:

At Junior Certificate level the student can:

Describe some of the major systems of the human body and have an understanding of food and health

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Recall that a balanced diet has six nutrients: carbohydrates, fats, proteins, vitamins, minerals and water	▢ ▢ ▢
2	Describe a food pyramid and give examples of each type of food recommended in a balanced diet	▢ ▢ ▢
3	Carry out food tests for starch, sugar and fat	▢ ▢ ▢
4	Read and interpret the energy values indicated on food product labels and compare the energy content per 100g of a number of foods	▢ ▢ ▢
5	Identify and locate the major parts of the digestive system including the mouth, food pipe, stomach, small intestine, large intestine and know their functions	▢ ▢ ▢
6	Identify molars, premolars, canines and incisors and describe their functions	▢ ▢ ▢
7	Investigate the action of the enzyme in saliva on starch	▢ ▢ ▢
8	Understand the release of energy from food	▢ ▢ ▢
9	Describe the function and composition of blood	▢ ▢ ▢
10	Demonstrate the effect of exercise and rest on pulse and breathing rate and understand that a balance of each promotes good health	▢ ▢ ▢
11	Recall that the average pulse rate for an adult at rest is 70 b.p.m., and explain why exercise results in increased pulse and breathing rates	▢ ▢ ▢
12	Recall that the normal temperature of the human body is 37 degrees centigrade, and understand that illness may cause a change in body temperature	▢ ▢ ▢

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ▢ ▢ ▢ | Work in progress ▢ ▢ ▢ | Work completed ▢ ▢ ▢

Physics 1

Science

Statement Code no: 6

Student: Class:

At Junior Certificate level the student can:

Understand the concept of measurement of Force, Energy and Heat

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Measure length, area, mass and time using the correct instruments	▢ ▢ ▢
2	Measure the volume of regular and irregular objects	▢ ▢ ▢
3	Perform an experiment to show that the air has mass and occupies space	▢ ▢ ▢
4	Investigate examples of friction and the effects of lubricants using practical everyday examples	▢ ▢ ▢
5	Name six sources of energy	▢ ▢ ▢
6	Classify sources of energy into renewable and non-renewable	▢ ▢ ▢
7	Investigate experimentally the expansion of solids, liquids and gases when heated	▢ ▢ ▢
8	Use a thermometer to measure and record different temperatures	▢ ▢ ▢
9	Carry out experiments that involve changes of state: from solid to liquid and liquid to solid, and from liquid to gas and gas to liquid.	▢ ▢ ▢
10	Identify six examples of energy conversion from everyday experience	▢ ▢ ▢

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ▢ ▢ ▢ | Work in progress ▢ ▢ ▢ | Work completed ▢ ▢ ▢

Chemistry 1

Science

Statement Code no: 7

Student: Class:

At Junior Certificate level the student can:

Recognise different substances and carry out separation techniques

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Follow instructions with accuracy and care	▢ ▢ ▢
2	Perform an experiment to demonstrate knowledge of the three states of matter	▢ ▢ ▢
3	Perform an experiment to show the solubility of substances in water	▢ ▢ ▢
4	Separate mixtures using filtration	▢ ▢ ▢
5	Separate mixtures using evaporation	▢ ▢ ▢
6	Separate mixtures using distillation	▢ ▢ ▢
7	Separate colours using paper chromatography	▢ ▢ ▢
8	Grow crystals using alum or copper sulphate	▢ ▢ ▢
9	Use litmus or a universal indicator to test a variety of solutions and classify these as acidic, base or neutral	▢ ▢ ▢
10	Investigate the pH of a variety of materials using the pH scale	▢ ▢ ▢

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ▢ ▢ ▢ | Work in progress ▢ ▢ ▢ | Work completed ▢ ▢ ▢

Chemistry 2

Science

Statement Code no: 8

Student: Class:

At Junior Certificate level the student can:

Understand some of the key principles of the chemistry of air and water

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Understand that air is a mixture of gases and show some knowledge of it's make-up	▢▢▢
2	Demonstrate and describe what happens when (i) a wooden splint and (ii) a piece of magnesium are burned in air	▢▢▢
3	Investigate the ability of oxygen to support combustion	▢▢▢
4	Describe how a sample of oxygen is prepared, naming chemicals and apparatus used	▢▢▢
5	Describe how a sample of carbon dioxide is prepared, naming chemicals and apparatus used	▢▢▢
6	Carry out simple tests to show the presence of carbon dioxide using limewater or candles	▢▢▢
7	Test a sample of water for hardness	▢▢▢
8	Test a sample to show the presence of dissolved substances in water	▢▢▢
9	Draw the water cycle and describe the key stages in the treatment of water to make it suitable for drinking	▢▢▢
10	Carry out an experiment to show that oxygen and water are required for rusting	▢▢▢

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Plant Biology

Science

Statement Code no: 9

Student: Class:

At Junior Certificate level the student can:

Understand and identify the structure, functions and processes of a typical flowering plant

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Draw one example of a plant cell, identifying the nucleus, cytoplasm and cell wall and indicate the position of the cell membrane	☐☐☐
2	Identify and understand the functions of the main parts of a microscope and use it to examine a plant cell	☐☐☐
3	Prepare a slide from plant tissue and sketch the cells under magnification	☐☐☐
4	Identify the main parts of a typical flowering plant and their functions; the root, stem, leaf and flower	☐☐☐
5	Locate and identify the main parts of the flower: sepals, petals, carpel and stamen	☐☐☐
6	Understand how to use a simple key to identify plants	☐☐☐
7	Describe, using a word equation, how plants make their own food through photosynthesis	☐☐☐
8	Show that starch is produced by a photosynthesising plant	☐☐☐
9	Investigate the growth response of plants to light	☐☐☐
10	Investigate the conditions necessary for germination	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Physics 2

Science

Statement Code no: 10

Student: Class:

At Junior Certificate level the student can:

Understand the concepts of magnetism, electrical conduction and the main properties of light

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Identify north and south poles of a magnet by simple experiments	▢▢▢
2	Carry out experiments to show attraction and repulsion between magnets	▢▢▢
3	Test a variety of materials for magnetism	▢▢▢
4	Show understanding of the term magnetic field and plot the magnetic field of a bar magnet	▢▢▢
5	Test electrical conduction in a variety of materials, and classify each material as a conductor or an insulator	▢▢▢
6	Describe how to wire a plug correctly and explain the safety role of a fuse or circuit breaker in domestic electric circuits	▢▢▢
7	Understand that light is a form of energy, which can be converted to other forms of energy	▢▢▢
8	Show that light travels in straight lines and explain how shadows are formed	▢▢▢
9	Investigate the reflection of light by plane mirrors	▢▢▢
10	Demonstrate and explain the operation of a simple periscope	▢▢▢
11	Understand that white light is made up of different colours, by producing a spectrum of white light using appropriate apparatus and list the colours of the spectrum	▢▢▢

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education.

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Chemistry 3

Science

Statement code no. 11

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of substances

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Name the 3 states of matter	☐☐☐
2	Perform simple experiments to investigate changes of state	☐☐☐
3	Separate mixtures using at least 3 of the following techniques Filtration Evaporation Distillation Chromatography	☐☐☐
4	Grow crystals using alum or copper sulphate	☐☐☐
5	Draw a solubility curve	☐☐☐
6	Classify materials as elements or compounds using the periodic table	☐☐☐
7	Use the periodic table to identify metals and non-metals	☐☐☐
8	List two properties of a metal and of a non-metal	☐☐☐
9	Investigate the conditions necessary for rusting and prevention of rusting	☐☐☐
10	Name two alloys and give one use for each	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ■■☐ | Work completed ■■■

Chemistry 4

Science

Statement code no. 12

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of the applications of Chemistry

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Test solutions and classify these as acidic, basic or neutral	☐☐☐
2	Investigate the pH of a variety of materials using a pH indicator	☐☐☐
3	State the names and formulae of three laboratory strong acids and bases	☐☐☐
4	Carry out an experiment to show that salt and water are produced when an acid neutralises a base	☐☐☐
5	Name the compounds that cause hardness in water and outline a simple test for hardness in water	☐☐☐
6	Describe the process of water treatment and give a reason for each step	☐☐☐
7	Recall the formula for water and investigate this using electrolysis	☐☐☐
8	Draw the structure of an atom	☐☐☐
9	Complete a table describing protons , neutrons and electrons under the following headings: charge, location and mass	☐☐☐
10	Give two differences between ionic and covalent bonding	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ■■☐ | Work completed ■■■

Chemistry 5

Science

Statement code no. 13

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Atmosphere and Gases

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Name the different gases present in air	☐☐☐
2	Show that one fifth of the air is made up of oxygen	☐☐☐
3	Prepare a sample of oxygen and a draw a labelled diagram of the of test for Oxygen using a glowing splint	☐☐☐
4	Prepare a sample of Carbon Dioxide and draw a labelled diagram of the process	☐☐☐
5	Test for Carbon Dioxide using limewater	☐☐☐
6	Show that CO_2 does not support combustion	☐☐☐
7	Name 2 fossil fuels and name two products of burning fossil fuels	☐☐☐
8	Describe the effect of acid rain	☐☐☐
9	Describe two advantages and two disadvantages of non- biodegradable plastics	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ■■☐ | Work completed ■■■

Environmental Biology

Science

Statement code no. 14

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Environmental Biology

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	List the seven characteristics of living things	☐☐☐
2	Draw a labelled diagram of an animal cell and a plant cell as seen under the light microscope	☐☐☐
3	Identify the main parts of a microscope and give the function of each part	☐☐☐
4	Prepare a slide from plant tissue and draw a sketch of the cells under magnification	☐☐☐
5	Use a simple key to identify plants and animals	☐☐☐
6	Use a quadrat to estimate the frequency of a named plant in a habitat	☐☐☐
7	List three pieces of equipment used to collect small animals /insects. Draw a sketch of each piece and describe briefly, how each can be used	☐☐☐
8	Identify a producer, a consumer and a decomposer in a food chain	☐☐☐
9	Investigate the presence of micro-organisms in soil and air	☐☐☐
10	Give one use of biotechnology in industry and medicine	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Human Biology 2

Science

Statement code no. 15

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Food Digestion and Excretion

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Identify three foods that are a good source of each of the following: carbohydrate, fat and protein	☐☐☐
2	Carry out tests for fat, reducing glucose, starch and protein	☐☐☐
3	Use the food pyramid as a guide to a balanced diet	☐☐☐
4	Read the energy values of food levels and compare the energy content Per 100g of a number of foods	☐☐☐
5	Investigate the simple conversion of chemical energy in food to heat energy	☐☐☐
6	Identify and label the major parts of the digestive system and give afunction to each	☐☐☐
7	Identify and give the function of incisors , canines, premolars and molars	☐☐☐
8	Investigate the action of amylase on starch	☐☐☐
9	Explain excretion. List the main organs and products of excretion	☐☐☐
10	Label the major parts of the urinary system on a diagram and give the functions of each part	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Human Biology 3

Science

Statement code no. 16

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Breathing , Respiration and Circulation

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Label the major parts of the breathing system	☐☐☐
2	Describe the exchange of gases between the lungs and the blood	☐☐☐
3	Carry out an experiment to compare the amount of carbon dioxide in inhaled and exhaled air	☐☐☐
4	Give a word equation for aerobic respiration	☐☐☐
5	Name four parts of the blood and give a function of each	☐☐☐
6	Label and give the function of the blood vessels carrying blood to and from the heart	☐☐☐
7	Name the parts of the heart and explain the function of each part	☐☐☐
8	Describe one cause of heart disease and one way of preventing it	☐☐☐
9	Recall the average pulse rate for an adult at rest	☐☐☐
10	Investigate the effect of exercise on pulse rate and /or breathing rate	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Human Biology 4

Science

Statement code no. 17

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Movement, Sensitivity, Reproduction and Genetics

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	List the functions of the skeleton	☐☐☐
2	Identify and locate the major bones of the skeleton: the skull, vertebrae, ribs, collar bone, shoulder blade and pelvis	☐☐☐
3	Name the three types of joint and describe the type of movement they allow	☐☐☐
4	List the five senses and name the organs associated with each	☐☐☐
5	Label a diagram of the human eye and give a function of each part	☐☐☐
6	Give one difference between a sensory nerve and a motor nerve	☐☐☐
7	Label the main parts of the male and female reproductive and give the function of each parts	☐☐☐
8	Describe the menstrual cycle	☐☐☐
9	Define fertilisation and say where it normally occurs	☐☐☐
10	List two genetic characteristics	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Plant Biology 2

Science

Statement code no. 18

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of flowering plants

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Label the main parts of a flowering plant on a diagram and give the function of each part	☐☐☐
2	Investigate the transport of water in plants and show the path of water through the plant	☐☐☐
3	Investigate the transpiration stream in plants	☐☐☐
4	Describe the process of photosynthesis	☐☐☐
5	Give a word equation for photosynthesis	☐☐☐
6	Show that starch is produced by a photosynthesising plant	☐☐☐
7	Investigate the growth responses of plants to light	☐☐☐
8	Identify and name the main parts of a flower	☐☐☐
9	List two methods of seed dispersal and give an example of each	☐☐☐
10	Investigate the conditions necessary for germination	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Physics 3

Science

Statement code no. 19

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Energy and Energy Conversions

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Define work in scientific terms and state its unit of measurement	☐☐☐
2	State the difference between work and power and name the unit of measurement of power	☐☐☐
3	List 7 different types of energy and give an everyday example in each case	☐☐☐
4	Give 3 examples of energy conversions in the home and name the energy types involved	☐☐☐
5	Trace energy conversions back to their primary source	☐☐☐
6	Show by experiment the conversion of chemical energy to electrical energy to heat energy	☐☐☐
7	Show by experiment the conversion of electrical energy to magnetic energy to kinetic energy	☐☐☐
8	Show by experiment the conversion of light energy to electrical energy to kinetic energy	☐☐☐
9	List three energy sources and give one advantage and disadvantage of each	☐☐☐
10	Give 3 examples of how energy could be conserved in the home	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Physics 4

Science

Statement code no. 20

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Heat, Light and Sound

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Investigate the effect of heating and cooling on solids, liquids and gases	☐☐☐
2	Determine the temperatures at which ice melts and water boils	☐☐☐
3	Carry out experiments that involve changes of state	☐☐☐
4	Investigate how heat is transferred by conduction, convection and radiation	☐☐☐
5	Compare the insulating properties of different material	☐☐☐
6	Demonstrate that light travels in straight lines	☐☐☐
7	Disperse white light into its different colours and name the colours of the viable spectrum	☐☐☐
8	Demonstrate the reflection of light using mirrors	☐☐☐
9	Show that sound is a form of energy and is caused by vibrations	☐☐☐
10	Tell which is faster, the speed of sound or the speed of light and explain the time difference between seeing and hearing the same event	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ■☐☐ | Work in progress ■■☐ | Work completed ■■■

Physics 5

Science

Statement code no. 21

Student: **Class:**

At Junior Certificate level I can:

Apply my knowledge of Magnetism, Electricity and Electronics

Date Commenced: ☐☐/☐☐/☐☐ **Date Awarded:** ☐☐/☐☐/☐☐

Learning Targets I can...

1	Show the attraction and repulsion between magnets and test different materials for magnetism	☐☐☐
2	Create a static electricity charge using simple materials and demonstrate the effect of earthing charged objects	☐☐☐
3	Perform a test to see if an object is an insulator or conductor of electricity using an electrical circuit	☐☐☐
4	Distinguish between direct current (DC) and alternating current (AC) and state the type of current and the voltage of the mains electricity supply	☐☐☐
5	Calculate the cost in euros of running an electrical appliance using the power rating of the appliance, the duration of use and the price of mains electricity	☐☐☐
6	Wire the plug of an electrical device correctly and identify the locations of the live, neutral and earth wires	☐☐☐
7	Describe how a fuse in an electrical circuit works as a safety measure against overheating	☐☐☐
8	Explain the importance of a circuit breaker or fuse board in the home	☐☐☐
9	Set up a simple circuit using switches, LEDs , resistors and buzzers	☐☐☐
10	Give an example of the use of LEDs and LDRs in everyday life	☐☐☐

Refer also to: Art, Home Economics, Personal and Social Development, Physical Education, Maths

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐