



JAMES COOK
HIGH SCHOOL

Year 11
Science
Activity Booklet

Home Learning Tasks for Year 11 JC Scholars

March 2021



Welcome to the JC Year 11 Science Activity Booklet



Read the following information carefully before making a start.

This booklet contains tasks that relate to Science. Completing the tasks will develop an understanding of the skills for each of the identified units of work. These units are;

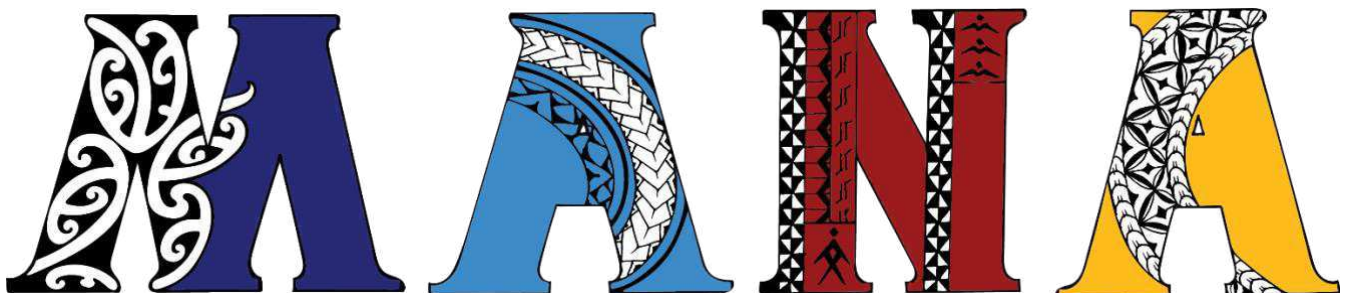
- Acids and Bases (Thinkers Keys)
- Horticulture (Thinkers Keys)

You will need to complete the activity tasks in an exercise book or on paper – this booklet is not a write-on workbook! It just contains the tasks and instructions, not spaces for completing the work.

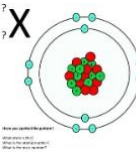
There may be some activities that you can't do, or they may require resources you don't have available. Just do your best with what you have – we're positive you've got some awesome thinking skills, and some great creative ideas for completing these tasks.

Make sure you keep this booklet somewhere safe – and remember to bring in any completed work to your teachers when we return to school.

We are proud of you for making the effort to do some of this work as Home Learning – you're developing great work habits and taking positive steps to get better every day. Congratulations on your excellent attitude.



Thinkers Keys: Horticulture Year 11

<p style="text-align: center;"><u>The Reverse</u></p> <p>Which household substances are not acids or bases</p>	<p style="text-align: center;"><u>The What if?</u></p> <p>What if you were carbonate. Name the products formed when you react with an acid</p>	<p style="text-align: center;"><u>The Disadvantages</u></p> <p>List two disadvantages of litmus as an indicator</p>	<p style="text-align: center;"><u>The Combination</u></p> <p>Name the products formed when you combine an acid with a base</p>	<p style="text-align: center;"><u>The Alphabet</u></p> <p>Make a list of all the words from A-Z in Acids and Bases</p>
<p style="text-align: center;"><u>The Bar</u></p> <p>What could you do to improve a Science laboratory at JCHS.</p> <p>(Bigger, Add, Remove)</p>	<p style="text-align: center;"><u>The Variations</u></p> <p>What are Isotopes? Using an example explain the similarities and differences between the two atoms</p>	<p style="text-align: center;"><u>The Picture</u></p> <p>Identify the atom and then draw the picture for Mg</p> 	<p style="text-align: center;"><u>The Predication</u></p> <p>Predict what would happen if Magnesium was placed in Hydrochloric acid. Discuss fully</p>	<p style="text-align: center;"><u>The Different Uses</u></p> <p>List the different metals and their uses in New Zealand</p>
<p style="text-align: center;"><u>The Ridiculous</u></p> <p>Which are correct?</p> <p style="padding-left: 40px;">MgO_2</p> <p style="padding-left: 40px;">$Al O_2$</p> <p style="padding-left: 40px;">$FeOH_2$</p> <p>Justify your answers</p>	<p style="text-align: center;"><u>The Commonality</u></p> <p>What is common between the structure of a magnesium atom and a magnesium ion</p>	<p style="text-align: center;"><u>The Question</u></p> <p>Write 3 questions that could have the answer ACID</p>	<p style="text-align: center;"><u>The Brainstorming</u></p> <p>Create a brainstorm of how different factors affect the rate of a chemical reaction</p>	<p style="text-align: center;"><u>The Inventions</u></p> <p>Invent a new metal Element that would be relevant in today's world. Draw pictures to explain its many uses</p>
<p style="text-align: center;"><u>The Interpretation</u></p> <p>Give three possible explanations for acids eating a person</p>	<p style="text-align: center;"><u>The Brick Wall</u></p> <p>Why are sometimes rules at home are different to the ones when doing experiments in a school laboratory. Discuss.</p>	<p style="text-align: center;"><u>The Construction</u></p> <p>Make a colourful labelled pH scale to identify substances as acids or bases</p>	<p style="text-align: center;"><u>The Forced Relationship</u></p> <p>Explain and draw a diagram to show you will clean acid spills using a piece of string, a balloon and a toy car</p>	<p style="text-align: center;"><u>The Alternative</u></p> <p>Discuss how we could share this survival guide and make it meaningful to all year 11 Science students</p>

Thinkers Keys: Horticulture Year 11

The What If?

What if vegetables are becoming too expensive and in short supply. What can we do to resolve this problem?

The Reverse?

How can we ensure that we are getting a fresh supply of vegetables daily?

The Disadvantages

What are disadvantages of consuming vegetables that have been sprayed with pesticides? What can we do to reduce the use of pesticides?

The Combination

What are the characteristics of pesticide free grown veggies and free-range chickens.

The Alphabet

List examples of pesticides and fertilizers used in gardens.

The Bar

Students should be able to sow seeds in containers. State all the steps required to sow the seeds and give examples of 5 winter vegetables that can be grown in containers.

The Variations

How many ways can you sow seeds so that your plants are ready to be planted in spring.

The Picture

How does the picture below relate to veggie farming?



The Prediction

Predict how backyard vegetable gardening will look like in the next 50 years.

The Different Uses

State 5 ways that the fertility of the soil be improved instead of using chemical fertilizers?

The Ridiculous

Seeds can be grown anywhere on earth at any time of the year. Comment about the above statement. Do you agree or disagree?

The Commonality

What commonality is there when using compost to grow vegetables in gardens and raising pigs?

The Question

Coriander is a herb you can grow all year round. Write 5 questions linked to the above statement.

The Brainstorming

What is the difference between worm farm and normal composting?

The Inventions

Invent your own compost bin for your house. Include all steps in this process.

The Interpretation

Composting should strongly be practiced for gardens. What are the benefits?

The Brick Wall

Composting should become compulsory in all schools and schools should start using three bins. One for green waste, one for food waste and one for paper/cardboards. Comment.

The Construction

What materials would you require to build a general compost bin and worm farms. How does a worm farm work?

The Forced Relationship

What advantage does seeds grown in containers have over seeds grown outdoors.

The Alternative

What are other alternatives of composting and worm farms?