



ROMEO AND JULIET

YEAR 3

SCIENCE: PLANTS

OBJECTIVES

These sequence of lessons will cover the following national curriculum objectives:

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- investigate the way in which water is transported within plants
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Working scientifically:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

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CONTEXT

A symbol is something that stands for more than itself...

An important symbol in Romeo and Juliet are plants, particularly roses. Herbs also play a big part in the play. Friar Lawrence uses them to make medicines and it his knowledge of plants and herbs that give him the idea of creating a sleeping potion to help Juliet.

Below are some quotes from the play that reference plants.

Friar Lawrence

O, mickle is the powerful grace that lies
In herbs, plants, stones, and their true qualities;
For naught so vile that on the earth doth live
But to the earth some special good doth give,
Nor aught so good strain'd from that fair use
Revolts from true birth, stumbling on abuse:
Virtue itself turns vice, being misapplied;
And vice sometimes by action dignified.

ACT 2, SCENE 3

Friar Lawrence

"Within the infant rind of this small flower
Poison hath residence and medicine power:
For this, being smelt, with that part cheers each part;
Being tasted, slays all senses with the heart"

ACT 2, SCENE 3

Juliet

"What's in a name?
That which we call a rose
By any other name would smell as sweet."

ACT 2 SCENE 2

Juliet

This bud of love, by summer's ripening breath,
May prove a beauteous flower when next we meet

ACT 2 SCENE 2

Juliet

The roses in thy cheeks and lips shall fade

ACT 4 SCENE 1

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LESSON 1:

L.I. To identify and describe the functions of different parts of a flowering plant

1. Label the rose: Worksheet 1
2. Watch this [video](#)
3. Describe the function of each part: Worksheet 2

LESSON 2

L.I. To explore the requirements of a rose for life and growth.

1. Read the information on Worksheet 3
2. Read the word bank
3. Work out which word goes in which space
4. Answer the questions at the bottom of the page to the best of your knowledge
5. Discuss work with a learning partner

LESSON 3

L.I. To explore and compare the requirements of different plants for life and growth

1. The Botanical Shakespeare website matches specific flora that links Shakespeare's characters to plants.

Juliet-Roses, Mandrakes and Pomegranates

Romeo- Plantain, Roses and Rush

Paris-Yew Trees

Benvolio-Sycamore

To look at more characters, visit - www.botanicalshakespeare.com/plants-by-character

2. TASK: Research how the needs of these plants may differ:
Worksheet 4

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LESSON 4

L.I. To investigate the way in which water is transported within plants

Children will write and conduct an experiment to investigate how water is transported within plants.

You will need:

- White flowers
- Food colouring
- Clear containers
- Water
- Scissors

How to conduct the investigation:

1. Select a number of white flowers.
2. Cut the stems so they are no longer than 5 inches.
3. Place cold water (and plant food if you have any) in containers – one per stem.
4. Pour 5ml of different coloured food colouring into each container (may vary depending on strength of colouring).
5. Leave in a cool place for 2-3 days.

Children could record one or more of the aspects of the investigation using your own template or ours (Science Investigation)

Possible Aspects to focus on when recording investigation: Hypothesis, Equipment needed, Prediction, Variables, Fair test, Method, Experiment diagram and labels, Results, Conclusion

THE SCIENCE BEHIND THE INVESTIGATION

In cut flowers, since there are no roots, water travels from the cut directly into the stems and travels to the petals and other parts of the plant.

Three factors contribute to the transportation of water:

Capillary action

Inside the stem, there are tube-like transport tissue, called xylem, that brings water and nutrient to different parts of the plant. Water molecules are attracted to the surface of the xylem cells by weak electrical attractions. This sticky property is called adhesion. Water automatically moves up the xylem due to adhesion and the resulting movement is called capillary action 1 .

Cohesion

Water molecules are not only attracted to the surface of xylem (adhesion), but they are also attracted to one another. This property is called cohesion. Because of cohesion, water molecules fill the column in the xylem as they move up and act as a continuous stream of water 2 .

Transpiration

Water evaporates from the plant through transpiration. As water evaporates in the petals or any part of the plant exposed to air, a negative pressure is created in the xylem, resulting in suction pulling the water upward just like you draw water upward when you suck on a straw 3 .

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LESSON 5

L.I. To explore the part that flowers play in the life cycle of flowering plants.

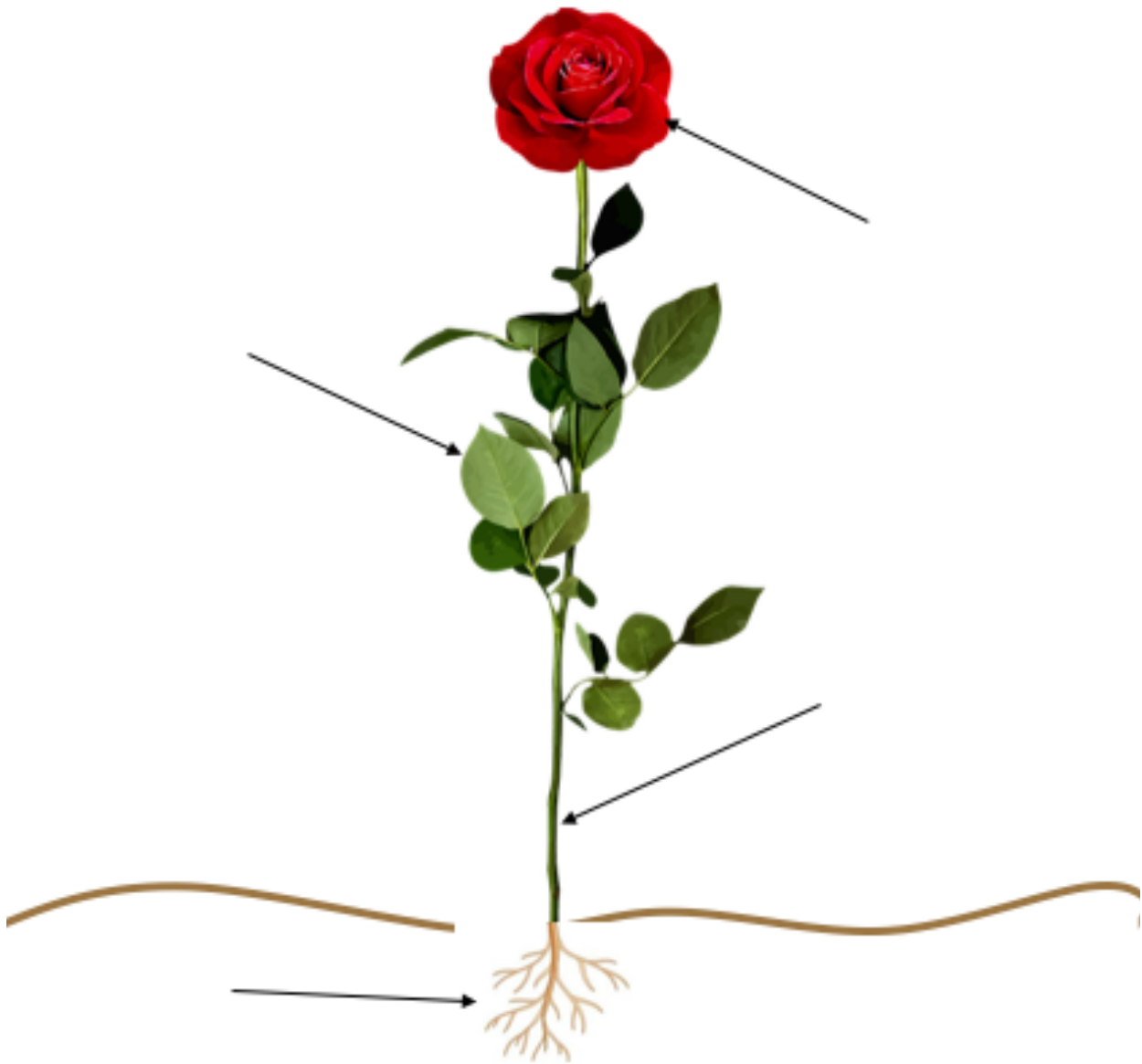
Including: pollination, seed formation and seed dispersal.

Roses are symbolic in Romeo and Juliet. They symbolise love and passion, as well, as beauty. The thorns are a reminder that love can also be painful. Roses die, like the two main characters.

1. Give children Worksheet 5 (Life Cycle of a Rose)
2. In pairs, children to discuss the different stages in the life cycle of a rose-they could make notes on the sheet-words they don't understand/what they currently know
3. Watch [this video](#)
4. Independent task: Worksheet 6 (to support). Children to draw and label their own life cycle of a rose (or use Worksheet 6 as a template). Children to describe what happens during each part of the process

WORKSHEET 1

L.1 To identify the functions of different parts of flowering plants.



VOCABULARY

roots

stems

leaves

flower

WORKSHEET 2

L.1 To describe the functions of different parts of flowering plants

ROOTS:

STEM:

LEAVES:

FLOWER:

WORKSHEET 3

L.1 To explore the requirements of a rose for life and growth.

Rose (*Rosa 'Olde Romeo'*)

Plants need _____ to breathe.

A plant uses _____ to make food for itself.

Plants need to do two things to first start growing, and _____ is needed for both of these things to happen: germination and photosynthesis.

A plant's roots need _____ so that they can spread out and absorb water and nutrients.

Its leaves also need _____ so that they access light.

When plants grow too _____ together, they have to compete for nutrients and light.

WORD BANK

space

light

compete

air

water

space

nutrients

close




WORKSHEET 3

L.1 To explore the requirements of a rose for life and growth.

What do you think the purpose of the rose's thorns are?

Cut roses typically last up to one week if they're kept in a cool place and flower food is used. Why is this poignant to Romeo and Juliet?

WORKSHEET 4

Juliet	Romeo	Paris	Benvolio
Roses Mandrakes Pomegranates	Plantain Roses Rush	Yew-trees	Sycamore
			

SHAKESPEARE'S CHARACTERS LINKED TO PLANTS: WWW.BOTANICALSHAKESPEARE.COM/PLANTS-BY-CHARACTER

TASK 1:

In pairs, work together and use the Internet to research how the needs of the plants above may differ.

Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.

It is up to you how you record your findings but you will need to present your findings to the class.

TASK 2:

Present your findings to your class. Remember, drawings, diagrams, key words may be useful when presenting

SCIENCE INVESTIGATION SHEET 1

AIM: What do we want to find out? We want to find...

HYPOTHESIS: Using what you know in science, what do you think will happen?

EQUIPMENT: What equipment will we use? We will use...

VARIABLES: What could we change? We could change... We are only going to change...

SCIENCE INVESTIGATION SHEET 2

METHODOLOGY What will we do? Firstly we...Then we...

MEASURE How are we going to record our results? Results will be recorded using...
because...

FAIR TEST What will we keep the same? We will keep...

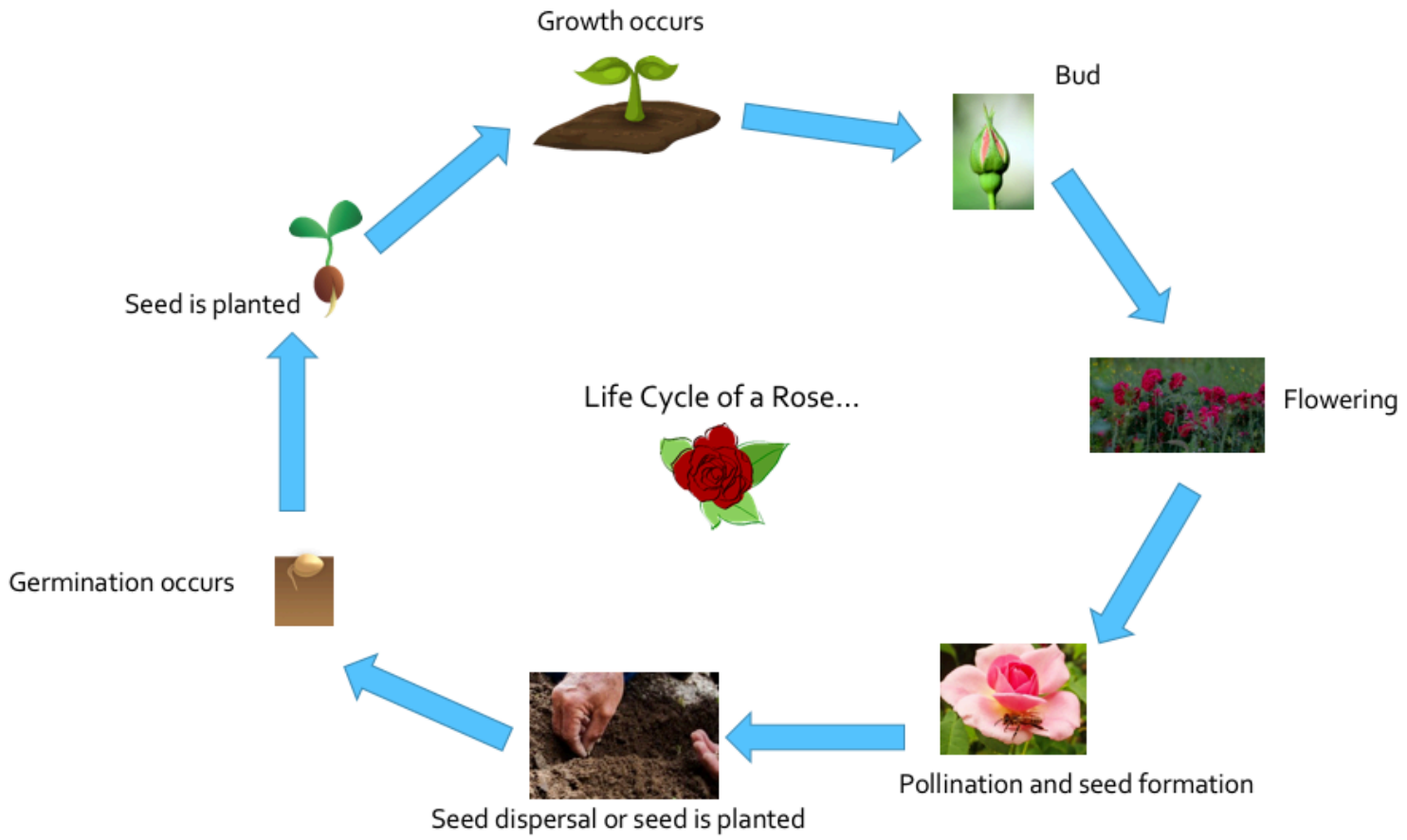
SCIENCE INVESTIGATION SHEET 3

RESULTS What has happened?

EVALUATION AND RECOMMENDATION

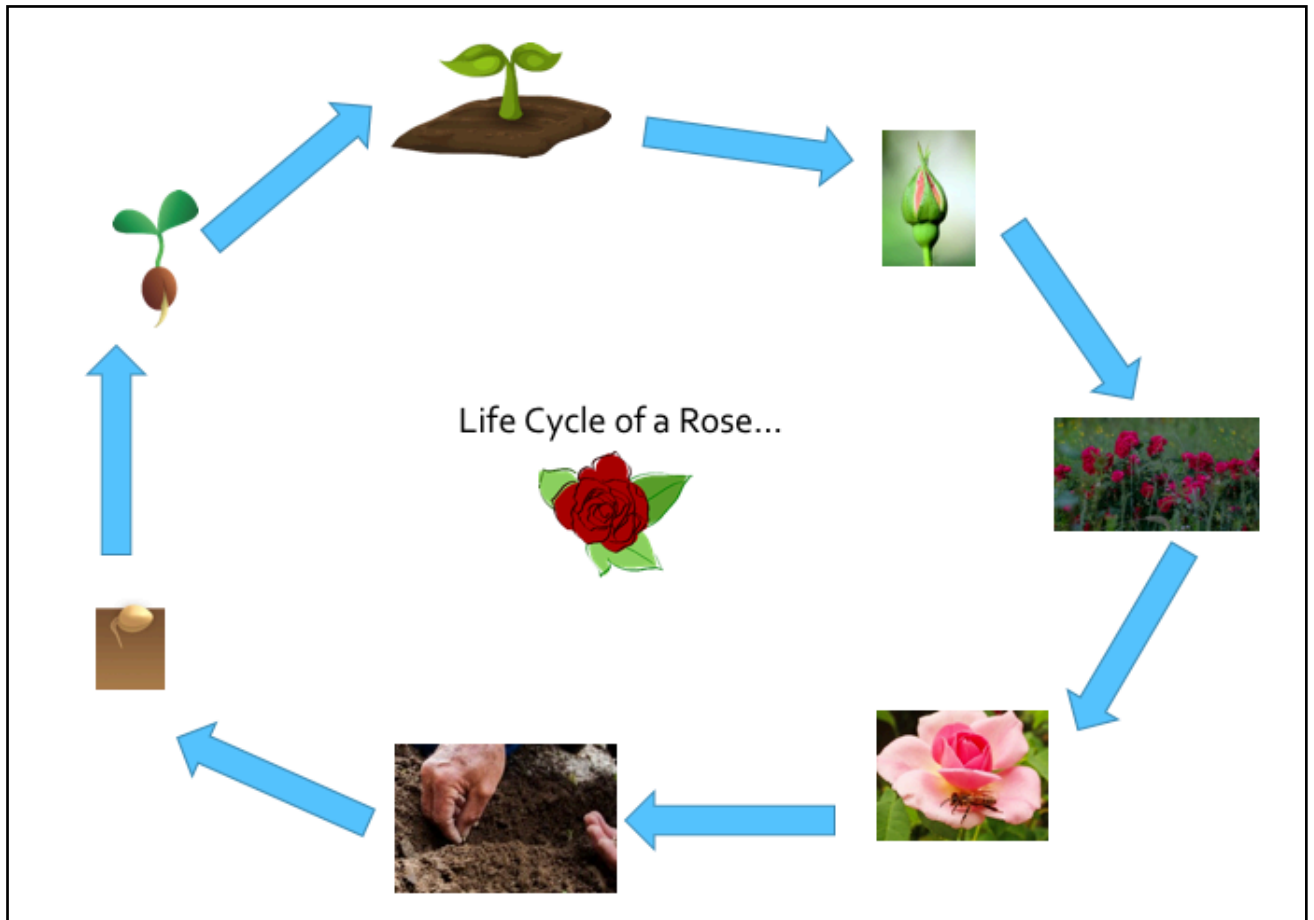
What happened and Why do you think this happened

What would you change or keep the same and why? If I did the experiment again, I would



LIFE CYCLE OF A ROSE

NOTES



WORDBANK

germination

dispersal

seed

pollination

flowering

bud

growth

planted