PLANT SCIENCE RESOURCES

Science Activity Journal Pages

These free downloadable sheets from

Why Play Learning

work alongside the
Plant Science booklet

You could print out the whole booklet if you intend to work through all the experiments - or you could just print out the pages you need, as and when you need them.

Just Have FUN

Colourful Celery Transport

Plant science page reference 8 – 9

Date _____ **Colour Scientist** _____

My Rainbow Laboratory Setup

Colours I'm using (circle the ones you chose):

Number of celery stalks: _____

My Prediction

I think the celery will:

_____

_____

Fastest colour will be:

_____

Special Challenge

- ☐ Split stalk
- ☐ Age comparison
- ☐ Temperature test

Why I chose this:

_____

_____

Colour Racing Championship Results

After 1 hour: _____

After 3 hours: _____

After 6 hours: _____

After 24 hours: _____

🏆 Fastest colour winner: _____

A space for notes

Colourful Celery Transport

Reflections & Learning

Amazing Transport Discovery

Which parts of the celery changed colour first?

_____

When you cut the celery horizontally, what pattern did you see?

_____

_____

The most amazing thing I observed was:

_____

Scientific Understanding

Plants transport water through tubes called:

_____

This process helps plants because:

_____

_____

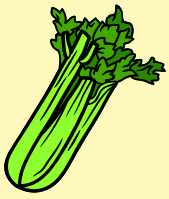
This is similar to how _____ works in my body:

_____

Draw Your Rainbow Results

Before

After 24 hours



🌈 **Colour Transport Master** 🌈

- ☐ **Successful colour transport**
- ☐ **Scientific observation**
- ☐ **Understanding xylem**
- ☐ **Making connections**

Sprouting Seed Maze Challenge

Plant science page reference 10 - 11

Date _____ **Maze Designer** _____

Plan Your Maze Before You Build It

My Maze Design: Sketch your maze layout here - where will you put the walls?

My Setup

Type of seed: _____

Why I chose these:

_____

_____

My Prediction

I think the shoots will:

_____

_____

I think it will take _____ days

Daily Maze Monitoring

Day 1: Germination check: _____

Day 3: First movements: _____

Day 5: Maze navigation: _____

Day 7: Problem solving: _____

Day 10: Final results: _____

A space for notes

Sprouting Seed Maze Challenge

Reflections & Learning

Amazing Plant Behaviour

The shoots found the light by _____

When they hit the wall they _____

The most surprising thing was: _____

_____

_____

Scientific Understanding

Plants grow towards light because:

_____

_____

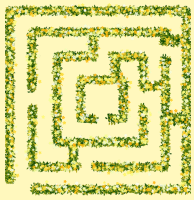
This helps them survive by:

_____

_____

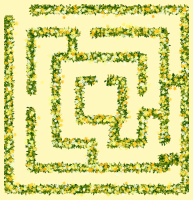
_____

Draw your maze journey -
Show the path your seed took through the maze to reach the light



🏆 Maze Master Achievements 🏆

- ☐ **Successful germination**
- ☐ **Maze completed**
- ☐ **Scientific observation**
- ☐ **Understanding phototropism**



Worm Observatory Investigation

Plant science page reference 12 - 13

Date _____ **Underground Explorer** _____

My Underground Laboratory Setup

Number of worms:

My soil layers:

☐ Soil ☐ Sand ☐ Compost ☐ Other:

Food I gave them _____

My Underground Hypothesis

I think the worms will:

_____

_____

I predict this will take:

_____

_____

Tunnel Predictions

I think they'll prefer: _____

_____

Their tunnels will:

_____

_____

Daily Worm World Watch

Day 1: What can I see? _____

Day 3: What changed? _____

Day 7: New tunnels? _____

Day 14: Amazing progress _____

A space for notes

Worm Observatory Investigation

Reflections & Learning

Incredible Worm Behaviour

The worms moved the soil by: _____

_____

Their favourite layer seemed to be:

_____

The most surprising discovery was:

_____

After two weeks, the soil looked: _____

_____

Scientific Understanding

Worms help plants by:

_____

_____

Without worms, gardens would:

_____

_____

Worms are important because they:

_____

_____

Draw your worm journey -
Show the path your worms created through the soil layers

Underground Explorer Expert

- ☐ **Successful worm habitat**
- ☐ **Detailed observations**
- ☐ **Understanding soil mixing**
- ☐ **Ecosystem knowledge**

Potato Power Battery

Plant science page reference 14 - 15

Date _____ **Power Engineer** _____

My Potato Battery Laboratory

Number of potatoes:

Potato varieties I'm testing:
☐ King Edward ☐ Maris Piper ☐ Charlotte ☐ Sweet Potato ☐ Other:

Metals I'm using: _____

_____

My Power Hypothesis

I think the potato battery will:

_____

_____

Best potato will be:

_____

LED Predictions

The LED will stay lit for:

_____

Brightness will be:

_____

Time	LED Brightness	Voltage Reading	Notes
Start			
1 hour			
3 hours			
6 hours			
24 hours			

Potato Power Battery

Reflections & Learning

Amazing Power Discovery

Which potato gave the most power?

How long did the LED stay bright?

What happened to the brightness over time?

The most surprising result was:

Scientific Understanding

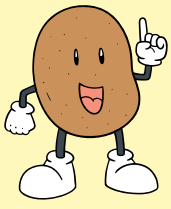
Potatoes can make electricity because:

The metals are important because:

Other fruits/vegetables that might work:

Draw Your Power Station

Show your potato battery setup and which potatoes worked best



⚡ **Power Engineer Expert** ⚡

- ☐ **LED successfully lit**
- ☐ **Voltage measurements**
- ☐ **Understanding electrochemistry**
- ☐ **Renewable energy knowledge**

Leaf Transpiration Investigation

Plant science page reference 16 - 17

Date _____ **Plant Breathing Detective** _____

My Plant Breathing Laboratory

Plants I'm testing:

☐ Houseplant ☐ Garden plant ☐ Tree branch ☐ Herb plant

☐ Other: _____

Weather:

_____

Temperature:

_____

My Investigation Plan

I think plants breathe more in:

_____

_____

I predict most water droplets:

_____

_____

Setup Details

Bag material:

_____

How I sealed it:

_____

_____

Time Check	Droplets Count	Size Description	Weather Notes
1 hour			
3 hours			
6 hours			
Next day			
Final check			

Leaf Transpiration Investigation

Reflections & Learning

Amazing Plant Breathing Discovery

Which plant produced the most water?

_____

Did weather conditions make a difference?

_____

The most water appeared at what time?

_____

The most amazing discovery was:

_____

Scientific Understanding

Plants release water through their leaves because:

_____

_____

This process helps plants by:

_____

_____

This is similar to how I breathe because:

_____

_____

Draw Your Plant's Breathing Observatory

Show your favourite plant and how it breathes water vapour

Plant Breathing Expert

- ☐ **Water collection success**
- ☐ **Weather observations**
- ☐ **Understanding transpiration**
- ☐ **Plant-human connections**

Seed Germination Race Championship

Plant science page reference 18 - 19

Date _____ **Race Official** _____

My Racing Championship Setup

Seeds in my race:

☐ Cress ☐ Bean ☐ Pea ☐ Sunflower ☐ Radish

☐ Other: _____

Growing conditions: _____

My Racing Predictions

Fastest germinator will be:

_____

Slowest will be:

_____

Why I think this:

_____

Race Conditions

Soil type:

_____

Water schedule:

_____

Location:

_____

Germination Racing Results

Day	Cress	Bean	Pea	Sunflower	Radish	Other
1						
2						
3						
5						
7						
10						

Seed Germination Race Championship

Reflections & Learning

Championship Results Analysis

Which seed was the ultimate champion?

_____

Were my predictions correct?

_____

The biggest surprise in the race was:

_____

Some seeds didn't germinate because:

_____

Scientific Understanding

Seeds need these conditions to germinate:

_____

_____

Different seeds germinate at different speeds because:

_____

_____

In nature, this timing helps plants by:

_____

_____

Draw Your Winner's Podium: Show your top 3 germination champions

🏆 **Race Official Champion** 🏆

- ☐ **All seeds tested**
- ☐ **Daily observations**
- ☐ **Understanding germination**
- ☐ **Scientific comparison**

Root Viewer Garden Observatory

Plant science page reference 20 -21

Date _____ **Underground Observer**_____

My Root Observatory Setup

Seeds/plants I'm observing:

☐ Bean ☐ Pea ☐ Carrot ☐ Radish ☐ Onion
☐ Other: _____

Container type: _____

Soil depth: _____

My Root Predictions

I think the roots will:

_____

_____

Deepest roots will be:

_____

_____

Growing Conditions

Watering schedule:

_____

Light position:

_____

_____

Root Development Timeline

Day 3: First root signs:

Day 7: Root growth:

Day 10: Root branching:

Day 14: Root vs shoot:

Day 21: Final measurements:

Root vs Shoot Measurements

Plant Type	Root Length	Shoot Height	Root Pattern

Root Viewer Garden Observatory

Reflections & Learning

Underground World Discoveries

Which plant had the most impressive root system?

_____

Did any roots surprise me with their pattern?

_____

The relationship between root size and plant size was:

_____

The most fascinating discovery was:

_____

Scientific Understanding

Roots are important because they:

_____

Different root patterns help plants by:

_____

_____

Without healthy roots, plants would:

_____

_____

Draw Your Underground World

Show your favourite root system and how it looked at different stages

🌱 Underground Observer Master 🌱

☐ Successful root viewing ☐ Growth measurements

☐ Understanding root systems ☐ Plant structure knowledge

Plant Breathing Experiment

Plant science page reference 22 - 23

Date _____ **Breathing Detective** _____

My Plant Breathing Laboratory

Plants I'm testing:

☐ Aquatic plant (elodea) ☐ Garden plant ☐ Houseplant ☐ Herb
☐ Other: _ _ _ _ _ _ _

Water temperature: _____ Light source: _____

My Breathing Hypothesis

I think plants breathe by:
_____

Most bubbles will appear:

_____

Test Conditions

Light conditions:
☐ Bright light ☐ Dim light ☐ Dark

Container setup: _____

_____

Bubble Counting Championship

Time Period	Bright Light	Dim Light	Dark	Notes
First 5 mins				
Next 5 mins				
After 15 mins				
After 30 mins				
After 1 hour				

Plant Breathing Experiment

Reflections & Learning

Bubble Observatory Results

Which light condition produced the most bubbles?

_____

What happened when I changed the light?

_____

The bubbles looked like:

_____

The most surprising result was:

_____

_____

Scientific Understanding

The bubbles are made of:

_____

Plants need light for this process because:

_____

_____

This process is important for life on Earth because:

_____

_____

Draw Your Oxygen Bubble Observatory

Show your plant releasing oxygen bubbles in different light conditions

Breathing Detective Expert

☐ Successful bubble observation ☐ Light comparison test

☐ Understanding photosynthesis ☐ Oxygen production knowledge

Photosynthesis Leaf Disc Float

Plant science page reference 24 - 25

Date _____ **Photosynthesis Scientist** _____

My Leaf Disc Laboratory Setup

Leaves I'm testing:

☐ Spinach ☐ Lettuce ☐ Garden leaves ☐ Herb leaves

☐ Other: _____

Number of discs: _____

Light source: _____

My Float Predictions

I think the discs will float because:

_____

First to float will be:

_____

_____

Experiment Setup

Solution used:

_____

How I removed air:

_____

_____

Floating Disc Championship

Time Check	Discs Floating	Leaf Type Floating	Light Condition	Notes
5 minutes				
10 minutes				
15 minutes				
30 minutes				
1 hour				

Photosynthesis Leaf Disc Float

Reflections & Learning

Floating Disc Discoveries

Which leaf discs floated first?

_____

What made the difference between floating and sinking?

_____

When I changed the light, what happened?

_____

The most amazing discovery was:

_____

Scientific Understanding

The discs float because they produce:

_____

This process only happens when there is:

_____

Photosynthesis is important because:

_____

_____

Without photosynthesis, life on Earth would:

_____

Draw Your Floating Laboratory

Show your leaf discs floating and sinking at different stages

Photosynthesis Master

☐ Successful disc floating ☐ Light effect observed

☐ Understanding photosynthesis ☐ Oxygen production knowledge

Herb Aroma Investigation

Plant science page reference 26 - 27

Date _____ **Aroma Detective** _____

My Herb Laboratory Collection

Herbs I'm investigating:

☐ Mint ☐ Basil ☐ Rosemary ☐ Lavender ☐ Thyme
☐ Other: _____

Collection time: _____

Weather: _____

My Aroma Predictions

Strongest smell will be:
_____

Most pleasant will be:
_____

Most unusual will be:
_____

Testing Methods

☐ Fresh leaves ☐ Crushed leaves
☐ Dried herbs ☐ In water

Family tasters:
_____

Aroma Detective Results

Herb Name	Fresh Aroma	Crushed Aroma	Strength (1-5)	Family Favourite
Mint				
Basil				
Rosemary				

Herb Aroma Investigation

Reflections & Learning

Amazing Aroma Discoveries

Which herb had the most surprising smell? _____

How did crushing the leaves change the aroma? _____

Did different family members prefer different herbs? _____

The herb that reminded me of food was _____

_____

Scientific Understanding

Plants make strong smells to:

_____

_____

Crushing releases more smell because:

_____

_____

Humans use herb aromas for:

_____

_____

Draw Your Herb Garden Plan

Design your ideal herb garden with your favourite discoveries

Aroma Detective Master

☐ **Multiple herb testing** ☐ **Family taste testing**

☐ **Understanding plant aromas** ☐ **Culinary connections**

Vegetable Regrowth Project

Plant science page reference 28 - 29

Date _____ **Regrowth Specialist**_____

My Regrowth Laboratory Setup

Vegetables I'm re-growing:

☐ Spring onions ☐ Celery ☐ Lettuce ☐ Carrot tops ☐ Potatoes
☐ Other: _____

Growing method: _____

Location: _____

My Regrowth Predictions

Fastest to regrow will be: _____

Most successful will be: _____

Time needed: _____

Setup Details

Water change schedule: _____

Light conditions: _____

Regrowth Progress Championship

Vegetable	Day 3	Day 7	Day 14	Day 21	Final Result
Spring onions					
Celery					
Lettuce					
Carrot tops					

Vegetable Regrowth Project

Reflections & Learning

Regrowth Success Stories

Which vegetable was the regrowth champion?

_____

What surprised me about the regrowth process?

_____

_____

Which vegetables didn't regrow well and why?

_____

How much money could this save our family?

_____

Scientific Understanding

Vegetables can regrow because they have:

_____

_____

Some parts regrow better than others because:

_____

_____

This knowledge helps reduce food waste by:

_____

_____

Draw Your Kitchen Garden Success

Show your most successful regrowth experiment from start to finish

♻️ Regrowth Specialist Master ♻️

☐ **Multiple vegetables tested** ☐ **Long-term observation**

☐ **Understanding plant regeneration** ☐ **Sustainability awareness**

Cress Shapes Garden Art

Plant science page reference 30 - 31

Date _____ **Garden Artist** _____

My Cress Art Laboratory

Shapes I'm creating:

☐ My name ☐ Smiley face ☐ Heart ☐ Star ☐ Animal shape
☐ Other: _____

Growing surface: _____

Cress variety: _____

My Art Predictions

Easiest shape will be:

_____

Most challenging will be:

_____

Time to see shapes:

_____

Art Setup Details

How I made the pattern:

_____

_____

Watering method:

_____

_____

Garden Art Progress Gallery

Day 1: First sprouts:

_____

Day 3: Shape emerging:

_____

Day 5: Clear pattern:

_____

Day 7: Art complete:

_____

Day 10: Final masterpiece:

_____

Root vs Shoot Measurements

Shape Created	Difficulty (1-5)	Success (1-5)	Days to Complete	Notes

Cress Shapes Garden Art

Reflections & Learning

Garden Art Gallery Reflections

Which shape worked out best?

_____

What made some shapes harder to create than others?

_____

How did the cress grow differently in thick vs thin areas?

_____

The most creative discovery was:

_____

Scientific Understanding

Cress grows in patterns because seeds need:

_____

_____

Controlling where plants grow helps us:

_____

_____

This knowledge could help in real gardens by:

_____

_____

Draw Your Garden Art Masterpiece

Show your most successful cress shape creation and design your next projects

🎨 Garden Artist Master 🎨

☐ Successful shape creation ☐ Creative pattern making

☐ Understanding plant spacing ☐ Artistic garden design