Learning Toolkit

There are better and worse ways of working, in lessons and at home. Using these methods will make learning easier.

Before...

Predict — **What** do you think will happen? What **changes** are you expecting to observe?

Explain — **Why** do you think this will happen? What **key processes** are involved?

After...

Observe

Can you describe clearly what happened? What if anything was measured?

Explain

Why did this happen? Can you suggest any pattern in the results?

The 4 Bs

Brain	Think through the concept; are the words or diagrams used hints?
Book	Check your textbook, folder or the internet for good explanations.
Buddy	Talk to a classmate. Can they give a suggestion or a place to start?
Boss	Tell your teacher: how have you already tried to solve the problem?

I Don't Get It...

What is 'it'?
What **do** you understand?
How far **did** you get?
What have you already tried?

Can you identify the problem? Is there:

- a **word** you don't understand?
- an **equation** you don't know or can't rearrange?
- a **step in a calculation** you can't do?
- An **example** or **consequence** you can't describe?

Personalised Learning

To learn **more effectively**, you should **customise** what you do so it works better **for you**.

- Add examples or explanations to notes in lessons from your own experience and hobbies.
- Spend a few minutes reviewing work at home.
- Ask questions about things that interest you.
- If you struggle with something, check your method is correct, then practise it.
- Use the active revision methods that work best for you. Ask for suggestions.

Blooms Thinking

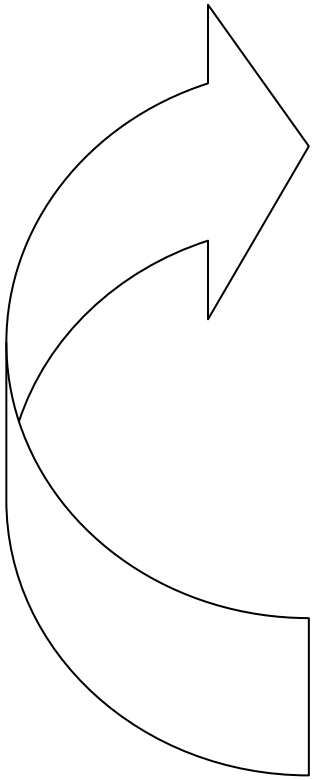
Start with facts—what can you **remember**?
Can you demonstrate **understanding** by *describing* or *explaining* what is happening? This means you should be able to **apply** what you know to real world situations. Aim to **analyze** the concept in *detail* (zoom in), and **evaluate** it by placing it in *context* (zoom out), often by comparing with related facts.

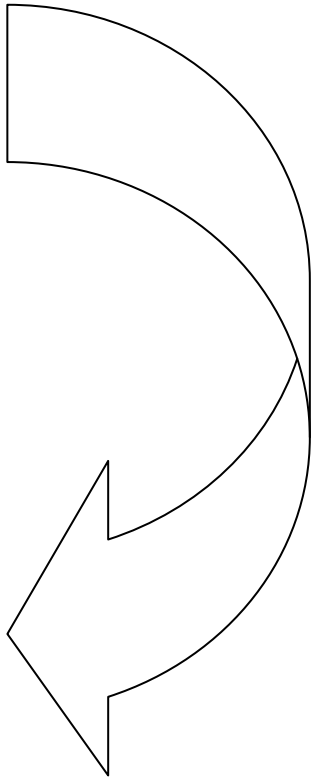
Creating something new based on the idea is the highest level of thinking.

Reading for Meaning

Facts in the text

Look for headings, diagram captions, examples and explanations to answer your questions.





Questions about the main ideas

If you've not been given questions, write your own using **Blooms** to check your understanding.

C Words

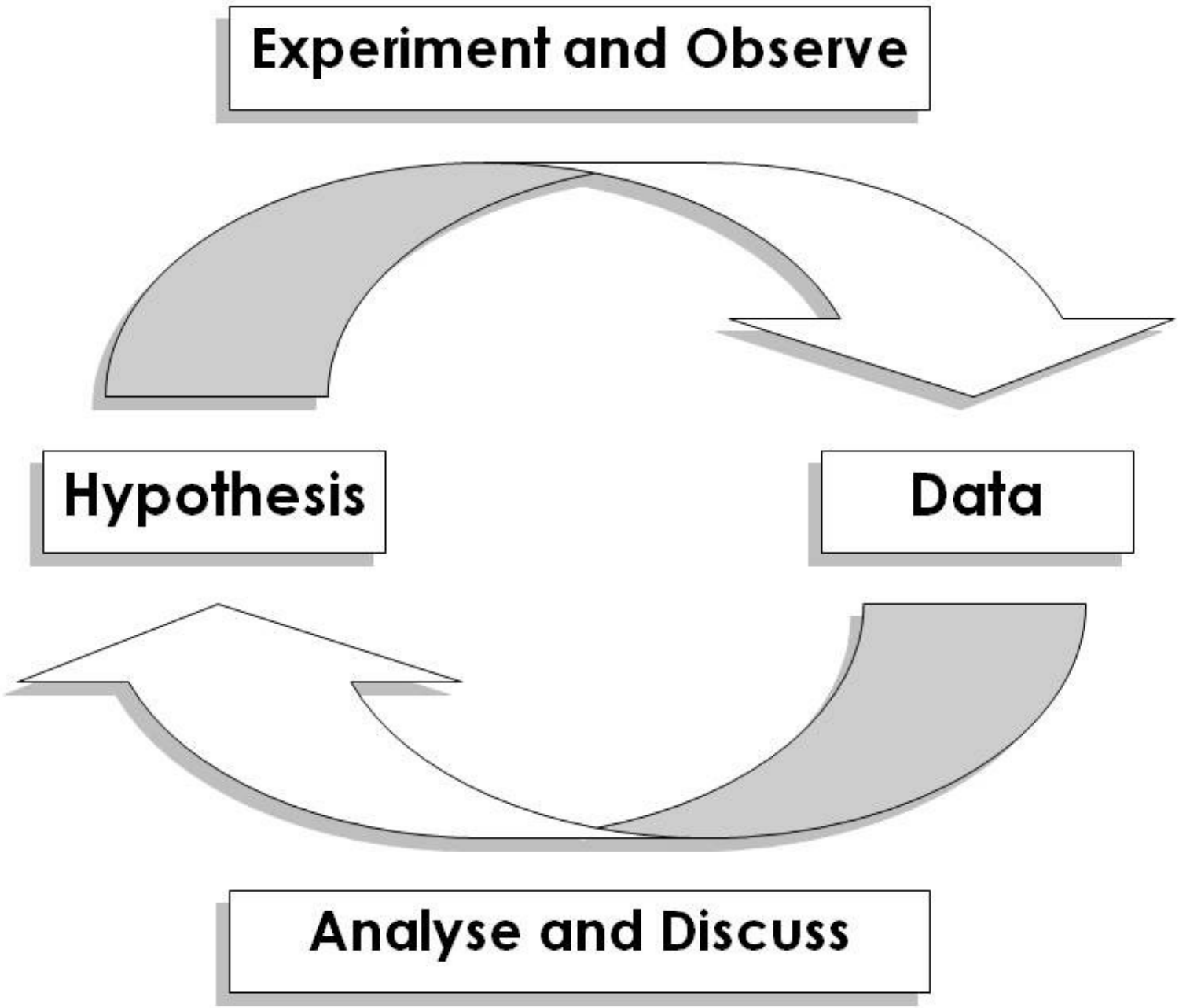
Concept
Context
Cue Words
Causes
Consequences

C Explanation

A **concept** is a big idea, perhaps a natural process or a link between variables. Knowing the **context** (how it fits into the world or universe) will be important. Links or clues to relevance might be suggested by **cues**. These could be related to **causes** (what makes it happen) or **consequences** (what happens because of it).

C Example

Thermal radiation is an important idea: heat can be transferred as an EM wave. It's a kind of heat transfer and is caused by a difference in temperature. The colour and surface area of the object affects how fast it happens. It works through a vacuum. An object will cool faster if it is a dark colour with a large surface area, such as cooling fins on electrical equipment like laptops.


Experiment and Observe
Data
Analyse and Discuss
Hypothesis

In a lesson

It's easy to get more from an activity: just **think more**.

What is the **context** — why does this matter?
What are the **consequences** of this, good and bad?
How does this fact **link** to what I know already?
Could I **summarise** this in a sentence?
Can I **explain** this idea to someone else?
Could I give **examples** of this being applied?

In 5 minutes

Spending just five minutes reviewing a lesson will help you to understand and remember the ideas.

Write a summary using the 5 C Words.
Bookmark a relevant page online eg Bitesize.
Add key words to your revision list or glossary.
Take photos of the main points for your phone.
Write a question you can test yourself with later.
Using your textbook, link the ideas to previous lessons.
Spend a few minutes checking what will come next.

In 20 minutes

If you have longer, you can review a short sequence of lessons and any linked homework.

Can you remember the key ideas without prompts?
Produce a summary page listing key definitions.
Create a mind map that links the ideas together.
Attempt practice questions from textbooks.
Write an exam section testing the material, ideally a mixture of recall and method questions.
Record a 2-3 minute audio file explaining the ideas.

In an hour

Every month or so, you should be making sure that you're prepared for any assessments of your work.

Practise exam-style questions and use markschemes to identify your weak areas.
Make a list of questions to ask your teacher.
Review work online and test your recall.
Produce summary notes, revision cards or mindmaps.
Find and organise bookmarks for revision online.

Useful Notes

You're writing your own **textbook** and **revision guide**. Bearing these ideas in mind will make it a good one.

Complete	If something is missing you can't revise it, check it or link to it in later lessons.
Readable	Leave gaps between paragraphs and print key words if necessary.
Diagrams	Large and clear, with useful labels. Draw them in pencil with a ruler.
Organised	Titles should be obvious and key words can be highlighted for quick reference.

MORSE Code Revision

Mnemonics	Memory tricks such as **How I Wish I Could Calculate Pi** or **Blue Bends Best.**
Organise	Making links between facts, eg mind maps, headings, similar/different etc.
Rehearse	Covering the same information and methods more than once.
Simplify	Learn key words and concepts so you summarise ideas, eg revision cards.
Extend	Use what you know in a new way eg answer questions, write a song.

Before Exams

When and where is it?
Leave enough time to review the whole course in the week before the exam, so you can solve problems.

Be prepared.
Bring pens, pencils, ruler, protractor, **calculator**.
Knowing you've revised means **less stress**.
Don't spend hours revising the night before.
Have something to eat. Red Bull doesn't count.

Exam Stress

Aim for a **reasonable** amount of time spent.
Make revision **effective**, not virtuous.
Identify, then **target** your weak areas.
Practice answering **actual questions**, both written and mathematical.

Anything that **helps you relax**—lucky charms, prayer, taking a deep breath—will help you do **better**.

Ask for help if it's getting on top of you.