

# Science at Home - ARB collections

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Science is everywhere; and there are opportunities for science thinking around every corner.

Below is a selection of classroom resources that are designed for teachers to use in the classroom but can be used by students and parents at home. Some resources can be downloaded and answered pencil and paper and others can be completed online.

**To see your students' results of online resources, make sure you are logged in to your account and share the student URL with your students. Students can also email or download their results at the end of the tasks.**

### Levels 1 and 2

At Levels 1 and 2 children are encouraged to describe what they notice about the world around them. Careful observation (noticing) helps them build evidence. They use observations to look for patterns to help them understand how things work in the world. Here are some classroom resources to try about careful observation and looking at patterns.

#### ***Careful observation:***

Students use information in a picture to:

- **work out** how big things are, e.g., What makes you think that?
- **work out** what they can really see or might know but can't see, e.g., What you can really see
- **combine** their observations with some information provided to complete a story about what might have happened in a photograph, e.g., A mystery photo
- **notice** things in a photograph and think about the issues/problems these things might cause, e.g.,
  - Rubbish on the beach
  - Driving on the beach
  - Cattle
  - Dogs at the beach
  - The drain
  - A lamb on the farm
  - River in flood

#### ***Patterns:***

Students notice things in a photograph and think about the patterns they make. They do this in different ways to:

- show **information**, e.g., Which graph matches the picture?
- show **similarities** and **differences**, e.g.,
  - Moths and butterflies
  - Seed patterns
  - Whose nest is this?

### Level 3

At Level 3 children are encouraged to test their ideas about things they have noticed. They include planning and carrying out investigations, recording data and thinking about what the

results mean. Here are some classroom resources to try at home about investigations. Students:

- practise **writing explanations**, e.g., Rolling cars
- **read and interpret graphs** and tables, e.g.,
  - Reading graphs
  - Beach clean-up
  - Healthy tomato plants
- understand about **fair tests**, for example, that we test things in an orderly way to build evidence, e.g.,
  - Ideas about forces and energy
  - Freezing water
  - The best moppper upper
  - Rusting nails
  - Paper money for Monopoly (version A)
  - Cat food and soup
  - Bouncing soccer balls
  - Which parachute floats the longest?

#### Level 4

At Level 4 children are continuing to develop their science understandings through investigations and reading about science. They are learning more about the special ways scientists communicate their ideas (e.g., in science reports, diagrams, graphs, and models). encouraged to test their ideas about things they have noticed. Here are some classroom resources to try at home about communicating ideas in science. Students:

- **practise** their understanding of classification keys, e.g.,
  - Using a metals key
  - Properties of metals
  - Identifying invertebrates
- **practise** features of written science text, e.g., Information about Moa
  - *electric circuits*: Switching on the bulbs
  - *food webs*: Rocky shore food web
  - *food chains*: My cat Sooty
  - *Venn diagrams*: Features of fish
  - *light diagrams*: Eclipse
  - *maps*: Reading the weather maps

#### Level 5

At Level 5 children are working with more complex science investigations. They are drawing on evidence to argue for or against science claims. They are using more specialised science diagrams, symbols, and models. They may be interested in **science issues** and begin to contribute their own ideas. Here are some classroom resources to try at home about science issues and actions. Students look at evidence to back up claims such as:

- How *adaptations* support survival, e.g., Kererū II
- How people's opinions can be based on *values*, e.g., Wind farms ,
- Who decides on safety *standards*, e.g., How safe are your sunglasses?
- Evidence that builds *theories*, e.g., Crown of Thorn starfish II

They practise more complex ways of **representing science ideas** such as:

- Understanding the *pH scale*, e.g., Acids and bases
- Representing *Light rays*, e.g., Light rays II
- Patterns of the *Periodic table*, e.g., Patterns on the Periodic Table
- Interpreting distance/time *graphs*, e.g., A car journey
- Diagrams of *states of matter*, e.g., States of water
- Graphing *data*, e.g., Constructing a graph

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