Investigations

This unit engages students in independent investigation of everyday situations involving measurement. The investigations use measurements students have learnt in the measurement curriculum.

Students will be engaged in trialling ideas, planning, collecting and presenting data, measuring areas and lengths. They will conduct experiments and draw conclusions. Also, they will make calculations using number skills.

These independent activities can be used to assess abilities covered by the Proficiency Strands of the Australian Curriculum.

Investigations

UNIT 1

Independent work
All measurement areas
Reasoning strategies
Problem solving
Data collection

CONTENT DESCRIPTIONS

Using units of measurement: ACMMG084

Use scaled instruments to measure and compare lengths, masses and capacities.

Using units of measurement: ACMMG290

Compare objects using familiar metric units of area and volume.

Using units of measurement: ACMMG086

Use am and pm notation and solve simple time problems.

Data representation and interpretation: ACMSP095

Select and trial methods for data collection, including survey questions and recording sheets.

Proficiency Strands

Understanding:

- There are different uses of different units of measurement.

Fluency:

- Collect and record data.
- Use instruments to measure accurately.

Problem solving:

- Solve authentic investigations using measurements of length, mass, area, volume, capacity, distance and time.
- Plan investigations that involve collecting data and carrying out the investigation.

Reasoning:

- Communicate information from data collection.
- Choose the most effective way to collect data for a given investigation.

LANGUAGE

investigation, conclusion, findings, further, data, metres, map, timetable, mass, kilograms, grams, half, quarter, minutes, o'clock, pm, am, litre, millilitre, square centimetres, cm^2, larger, smaller, measurement, distance

MATERIALS

bean-bags, metre rulers, food catalogues

BLM CONTENT

- materials needed for each BLM

1.1 Mini-games – plan four activities. Draw a map of the space.

1.2 Eyes open or shut? – conduct an experiment to see if having eyes open or shut or standing on one foot when throwing a bean bag influences the distance thrown.

- beanbags, metre rules

1.3 Best buy – use food catalogues and investigate if it is better to buy a larger tin or packet than smaller tins or packets.

- food catalogues (Check suitability for this investigation.)

1.4 Design a playroom – plan how to use a space for a playroom and draw the plan.

1.5 Plan your day – plan a day and draw up a timetable.

1.6 Magic Potion – devise a recipe to make 2 L of magic potion.

1.7 Big Feet – conduct an experiment to find out if foot size is related to height.

ADDITIONAL ACTIVITIES

- Discuss with students as a class how they have to plan accurately when presented with an investigation question. Discuss different ways of obtaining information and different ways of organising the information so it can be easily interpreted, encouraging them to be original and creative. Discuss how students have to work out conclusions from their findings so the investigation is answered.
- After an investigation, discuss the findings of some students. Encourage feedback from students about how they thought the investigation went and perhaps how the investigation could have been improved.
- Provide students with opportunities to collect data and to organise it. Students can suggest topics, but could include — eg Pets, Favourite TV show, Sport they play etc.
- Encourage students to think of measurement investigation topics for the class to investigate, eg 'How big does a school bag need to be?'
- Provide students with lots of opportunities to estimate and measure in all measurement areas.
- Have students research the invention of the thermometer, where do the words *kilometre*, *kilogram* come from, the origin of calendars or different calendars around the world, eg Chinese and Jewish.

Remember

Encourage students to:

- Read and think carefully about what to do.
- Plan, collect information and then draw conclusions.
- Be creative in their ideas.
- Keep to the brief.
- Realise that in most investigations there is no one correct answer.

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ANSWERS

Encourage self-evaluation. Judge whether work shows evidence that the student:

BLM 1.1
planned accurately, used original ideas and organised the working space well.

BLM 1.2
planned accurately, worked out and organised conclusions and kept to the brief.

BLM 1.3
made correct number calculations, planned and worked out conclusions and kept to the brief.

BLM 1.4
planned accurately, used original ideas, planned their space well and kept to the brief.
Extension: use of a scale.

BLM 1.5
planned accurately, used original ideas and kept to the brief.

BLM 1.6
made the recipe add to 2 L, used original ideas and kept to the brief.

BLM 1.7
showed ability to plan accurately and work out conclusions, used original ideas and kept to the brief.

Name Date

GAMES ON TODAY!

How can you plan a space for a mini games day?

You have been asked to organise a Mini-games Day for your class that involves races and throwing events.

Describe four events you would have:

_____

_____

_____

_____

_____

_____

_____

_____

Draw a map of the games area to show where the events would be.

Remember: Big measurements take more space than small ones.

Using units of measurement: ACMMG290 Compare objects using familiar metric units of area and volume.
Problem solving: Solve authentic problems using measurements of length and area.

Eyes Open or Shut?

Name Date

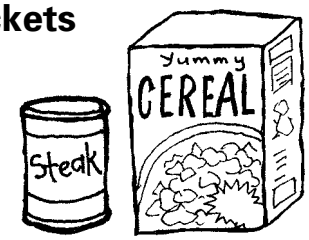
Do children throw a bean bag further with their eyes open, shut or standing on one foot?

What did you find out?

Best Buy

Name Date

Is it better to buy a large packet or tin of food or smaller packets or tins of the same product?



You will need food catalogues for this investigation.

Find two products that come in various sized packets or tins.

Write down the sizes and the prices.

Work out if it is cheaper to buy the bigger sizes or the smaller sizes.

What did you find?

Using units of measurement: ACMMG084 Use scaled instruments to measure and compare lengths, masses and capacities and temperatures. Understanding: The different uses of different units of measurement. Fluency: Collect and record data. Make calculations. Problem solving: Solve authentic problems using measurements of mass and capacity.

Design a Playroom

Name Date

How do you plan the best space for playing? _____

What would you like to have in your playroom? _____

Draw the plan of your playroom. Furniture is shown like this: 

Using units of measurement: ACMMG290 Compare objects using familiar metric units of area.
Problem solving: Solve authentic problems using measurements of area.

Plan Your Day

Name Date

If you had your own way, what would you like to do tomorrow?
Make a timetable of your perfect day.

What I am doing.

12 midnight

12 midnight

What would be the best thing?

Magic Potion

Name Date

What would you put in a magic potion?

Witchy Poo has asked you to make 2 L of magic potion to sell at the Copper Cauldron. Use your imagination to include ingredients that have powers you think people want. Make up two recipes for Witchy Poo to choose the best one.

Recipe 1

Recipe 2

What will happen when people drink it?

Big Feet

Name Date

Do taller people have larger feet?

Choose twelve people and find out.

Name	Height	Shoe size

What did you find out?