



## *Mr Archimedes' Bath*

By Pamela Allen

### Summary

*Revisit an age-old theory in a fresh new way.*

Every time Mr Archimedes has a bath with his friends, the water overflows. Somebody must be putting extra water in the bath. Is it Kangaroo? Or is it Goat or Wombat? Whoever it is, Mr Archimedes is going to find out.

Commended, Children's Book Council Book of the Year Awards 1981.

### Key Learning Outcomes

English: ACELA1433, ACELT1584, ACELT1582, ACELT1586

Science: ACSIS014, ACSIS027, ACSIS029, ACSIS038, ACSHE021

Mathematics: ACMMG019

### Themes

Problem-solving, Humour, Measuring, Scientific method

Recommended Ages: 2+

ISBN: 9781460758960

Released: February 2020

Notes by: Barbara Braxton

## CLASSROOM ACTIVITIES

### Before Reading

Book covers give readers clues to the contents of a story and help them focus their thoughts on what might happen. Examine the cover and identify:

- Where the story happens (setting)
- Who it is about (characters)
- What is happening (plot and problem)

Why might the man be in the bath with the animals, and what do students think the relationship is between them?

- Is this likely to be an imaginative, informative or persuasive text? Why?
- Can it be more than one of those?

Introduce the title and demonstrate how “Archimedes” can be broken into parts to make it easier to say. Look for other words in the story that the technique could be applied to.

### During Reading

Read the first three pages of the story and have the students answer Mr Archimedes’ question about where all the extra water came from.

- Encourage them to use the illustrations to interpret the cause of the overflowing bath and its consequences.
  - What happens when more animals get in the bath?
  - If the water goes up, does it mean there is more water in the bath?
  - Do the big animals raise the level more than small animals?
  - Do the heavy animals make a bigger difference in the water level than the lighter animals?
  - Where does the water go when the animals get out?
- Discuss students’ experiences of things that have overflowed – why they have and what has happened.

Consider why Mr Archimedes is putting a ruler into the water in the bathtub and predict what will happen to the water level when they all get in, and when they all get out.

- If they were Mr Archimedes, what questions would they be asking?
- How would they try to solve the problem?
- Who do they think is responsible?
- Make a graph of the predictions to compare with the final answer at the end of the story.

Introduce and explain measurement terminology as appropriate, as well as the units used to measure them:

- empty, full, overflowing, more than, less than, litres, millilitres
- depth – the distance from the top or surface to the bottom of something
- capacity – how much a container will hold

### After Reading

As a class, have students retell the story in storyboard format, clearly setting out the key steps that Mr Archimedes took and what he discovered.

Discuss what Mr Archimedes learned in the story and whether he was fair to blame the animals as he did at the start.

Return to the earlier discussion about whether this is an imaginative, informative or persuasive text and consider the options again.

- Can a story be more than one type of text at a time?
- Is what Mr Archimedes discovered true?

Have the students suggest ways in which they could test what Mr Archimedes discovered.

- In pairs/small groups have them devise a question to answer or a hypothesis to test. Encourage them to use containers of different sizes and shapes, use different liquids, and immerse objects of different sizes and masses. Have students predict the outcomes and then test their predictions.
  - Do they need an actual bath and animals?
  - What could they substitute?
  - Does something large move the liquid more than something small?
  - Does something heavy move it more than something light?
  - Does it matter if the liquid is not water?
  - Does the shape of the container change the amount the liquid moves?
  - How can we measure how much the liquid moves?
  - Which is the best way?

Introduce the terms 'experiment' and 'procedure'. Show students how retelling the story step-by-step describes Mr Archimedes' procedure. Have the students observe, ask questions and describe the results that they discover.

- Younger children may use terminology about the liquid moving up, down or overflowing, while older children could use a dipstick (ruler) to measure more accurately.

Have students use a range of methods to sort their discoveries and, through discussion, compare these with their predictions. Have them compare their results with those of others and discuss their findings. Can they come to one shared conclusion?

Teach the routine of: predicting/hypothesising, testing, collecting and comparing data, and drawing conclusions/making generalisations.

As a class, have the students identify and communicate in written format the steps they took and their discoveries. Compare this to their retelling of what Mr Archimedes did.

- Did they get similar results to Mr Archimedes?
- Are they able to form a conclusion that encapsulates their discoveries?

Share their learning with the community by having students write about what they did and learned.

### Extension

Although this is a work of fiction, Archimedes did exist and he did make important mathematical and scientific discoveries. Some students may like to find out more about the man and his work, which shaped the way we understand the world.

Pamela Allen is a prolific author for young readers, so work with your teacher librarian to identify other titles and have the class create a display for the library with story summaries and reviews to encourage other students to borrow them.

### ABOUT THE AUTHOR

Pamela Allen is a phenomenon in the world of children's literature. For forty years her picture books have enchanted generations of children around the world and in many languages. They have garnered a glittering array of awards and commendations including six Children's Book Council of Australia Book of the Year Awards, two New South Wales Premier's Literary Awards, an International Board on Books for Young People Diploma for Illustration, the Margaret Mahy Medal, New Zealand's most prestigious award for children's literature, and most recently The Gaylene Gordon Award for a Much Loved Book from the Children's Literature Foundation of New Zealand. She lives in Auckland, New Zealand.

Pamela's books are full of the music of language; they are 'fragments of theatre', designed to be read aloud and shared between an adult and a child. Patch Theatre Company of Adelaide has now created three theatrical performances from a selection of Pamela's books. These have toured throughout Australia since 2007; 2014 saw the first tour through New Zealand followed by a second tour in 2019. *Black Dog* was adapted for the stage and had two seasons in 2018 and 2019. All have performed to packed houses.

'From Pamela Allen's first publication in 1980 it was clear that here was a creator of picture books with all the glow, gesture, din and dance to capture the attention, engage the imagination, teach, show, tickle and excite small children.' Meg Sorensen, *Australian Book Review*