

40 Weeks of Math Challenges

Week 21



These visual math challenges have been created to intrigue and inspire your children. They are designed to be hands on, open-ended inquiries, to challenge them to think deeply about the world around them.

Each week a new set will be released with four levels.

- Preschool
- Years 1/2 (approx. age 6-8)
- Year 3/4 (approx ages 8-10)
- Year 5/6 (approx. ages 10-12)

I hope you enjoy exploring the ideas with your children! The challenges don't require any special resources, however your children will need a 'Math Journal' to record their discoveries. Any notebook will work, but if you can, try to encourage them to use a Grid book.

You are welcome to freely print these cards for your family but please respect our creative copyright and link back to the original file on our web page to share with others. Thanks, Jo

Find me on Instagram @jo_mathinnature and [Nature Study Australia](#)

Archimedes

Archimedes was a Greek mathematician from the ancient city of Syracuse in Sicily. (287-212BC)

1. Look at the picture, what do you notice?
2. The thing in his hand is a tool used for measuring called a calliper.
3. You can make one with a pipe cleaner. Fold it in half and then pretend to be Archimedes and measure some things. (maybe on a map or a picture in book)



Challenge 21

1/2

Archimedes

Archimedes was a Greek mathematician from the ancient city of Syracuse in Sicily. (287-212BC)

1. Look at the picture, what do you notice?
2. Archimedes made some amazing discoveries by observing, measuring and doing math.
3. Some of the things he liked to work with were cylinders, spheres and cones. These are 3D shapes. Make a page in your math journal with drawings of these and/ cut pictures out of magazines of things that are cylinders, cones and spheres.



Archimedes

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1. A famous story about Archimedes is the story of the King's crown. Find this story online and read it.
2. Use Archimedes' method of finding the volume of a solid object by filling a measuring jug to 100ml. Drop a stone into the jug and record the new level measurement. The difference between the two measurements (the end level minus 100ml) is the volume of the stone.
3. Record your results in your math journal.



Archimedes

Archimedes was a Greek mathematician from the ancient city of Syracuse in Sicily. (287-212BC)

1. Archimedes made many discoveries. One was that the volume of a cone, sphere and cylinder (each with the same base diameter) is related by the ratio 1:2:3. He built on EUCLID, who proved that the capacity of cylinder is three times the cone with the same base and height.
2. Make a cone and cylinder out of cardboard and check this out using rice. Can you pour three full cones of rice into your cylinder?



Challenge 21 - How to make a cone and cylinder.



To make a cylinder and cone from toilet rolls you will need: 2 toilet rolls, baking paper, tape, scissors, marking pen and ruler.

1. Cut down the centre of one roll.
2. Twist the cut roll into a cone shape. Use a little piece of tape to hold it in place, then adjust the base opening so it is the same diameter as the uncut roll. Tape.
3. Measure the height of the cone so it is the same height as the uncut roll. Trim the bottom of the cone.
4. Check that the diameter of both cone and cylinder are the same. Adjust if necessary.
5. Use baking paper to cover the bottom of the uncut roll, tape in place.

Or, you could print the following page on card stock, cut and glue/tape. Seal the bottom of the cylinder with paper and tape.

Challenge 21 - How to make a cone and cylinder.

