

Time Turtle - Telling the time with a Sundial

Time Turtle has no idea what time it is! The Maths Mates are arguing because these are the times their watches are saying...



What times are they telling?

All their watches are telling different times! This is why they are arguing...



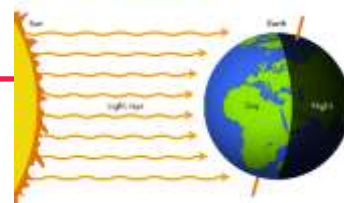
Can you help them?



Did you know...

... that we tell the time based on how the earth revolves? It takes 24 hours for the Earth to do one full spin. As it does so, the sun appears to move across the sky – though of course the sun isn't moving, it's the earth turning. When it is dark, the Earth has spun so that the sun is on the other side, which is why we can't see it for those hours.

When we can see it, it creates shadows – and this is what we will use to make the time to help our Maths Mates.



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What will I need?

- A stick, or your own body!
- Something to hold the stick in place - plasticine, a pot of soil or sand
- A compass – an actual physical one, or you can get a free app on your phone (the activity can still be completed without a compass)
- Chalk or pen / pencil and a large piece of paper
- An outdoor space – your back garden, the street in front of your home, or a safe space (park, playground) – that is NOT in shade
- A sunny day!

1. Choose the spot where you are going to make your sundial

If you are using your body, the space will need to be larger. If you are using a stick your space can be smaller. If you are using pen and paper, you will need to place it here.

2. Using your compass

Work out where north and south is.



3. Create a centre point

Either place your stick here standing upright, or stand here, facing north.



4. Mark your first line

This is your first hour. It is a good idea to try and start in the morning at about 9am! Mark your line by drawing around the shadow that the stick makes, or around the shadow your body makes. At the end of the marking you have made, mark the time.



5. Repeat step 4

Every hour, making sure you mark the time at the end of the shadow

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Variation – You could decorate pebbles to mark the time from start to finish. These can be placed at the end of your shadow marking instead of writing the numbers.



6. Now you can tell the time!

At any point in the day, look to see which time the shadow is pointing at. If it is half way between 2 numbers, then it is half past the previous hour. Can you work out where quarter past and quarter to would be?

And now the Maths Mates can synchronise their watches! Time Turtle can finally tell the time!



Why is this maths?

You are exploring time - a unit of measure. Time telling is made complicated by operating in a base 60 system which is in contrast to our usual number system of base 10 or 100.



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