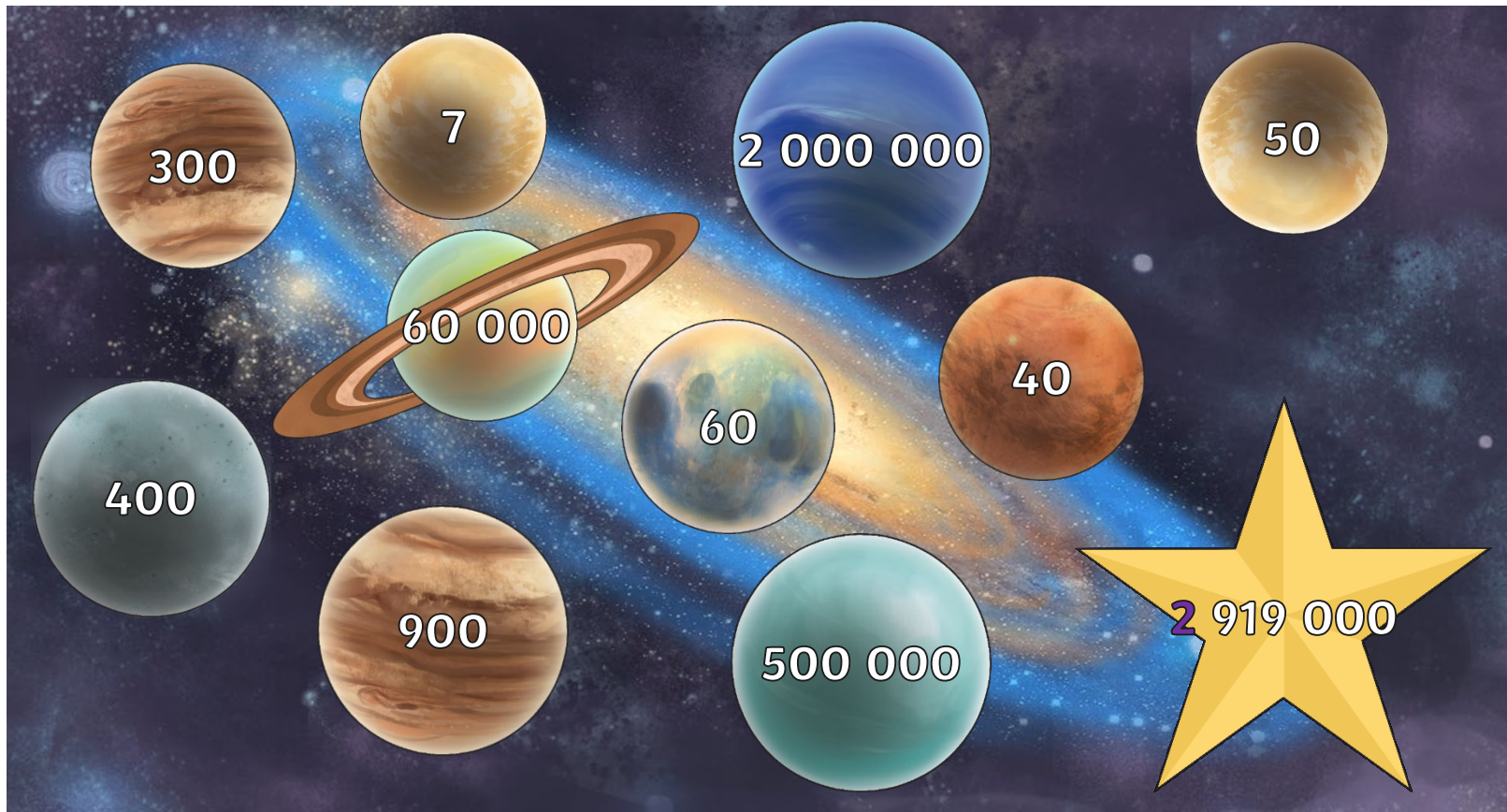


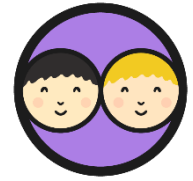
# Dynamic Digits



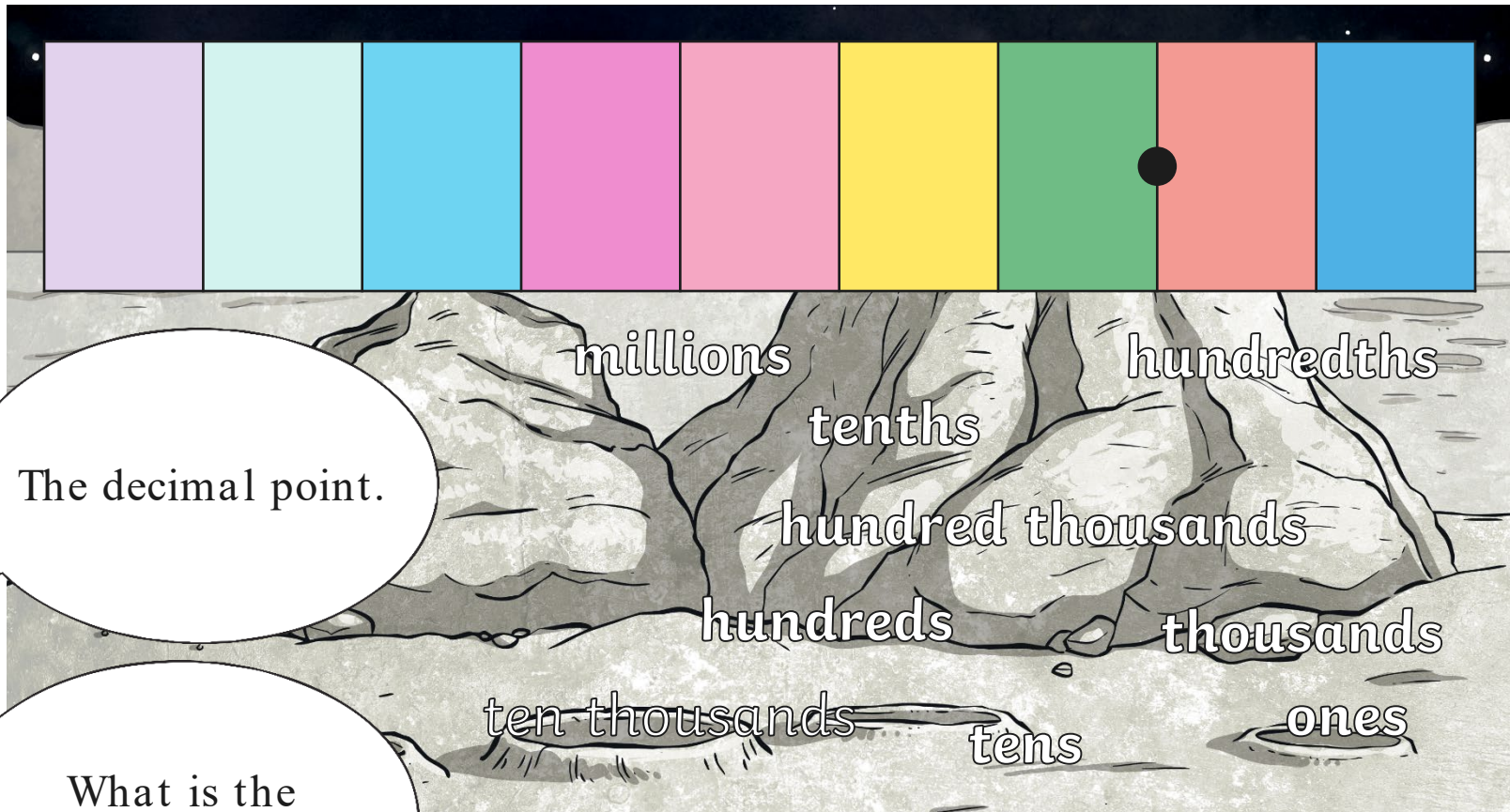
What number does the highlighted digit in the star stand for?  
Match the shooting star to the planet which shows the answer.



# Place Value Grid



With your partner, work out where these labels need to go on the place value grid.

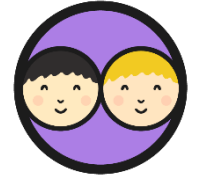


The decimal point.

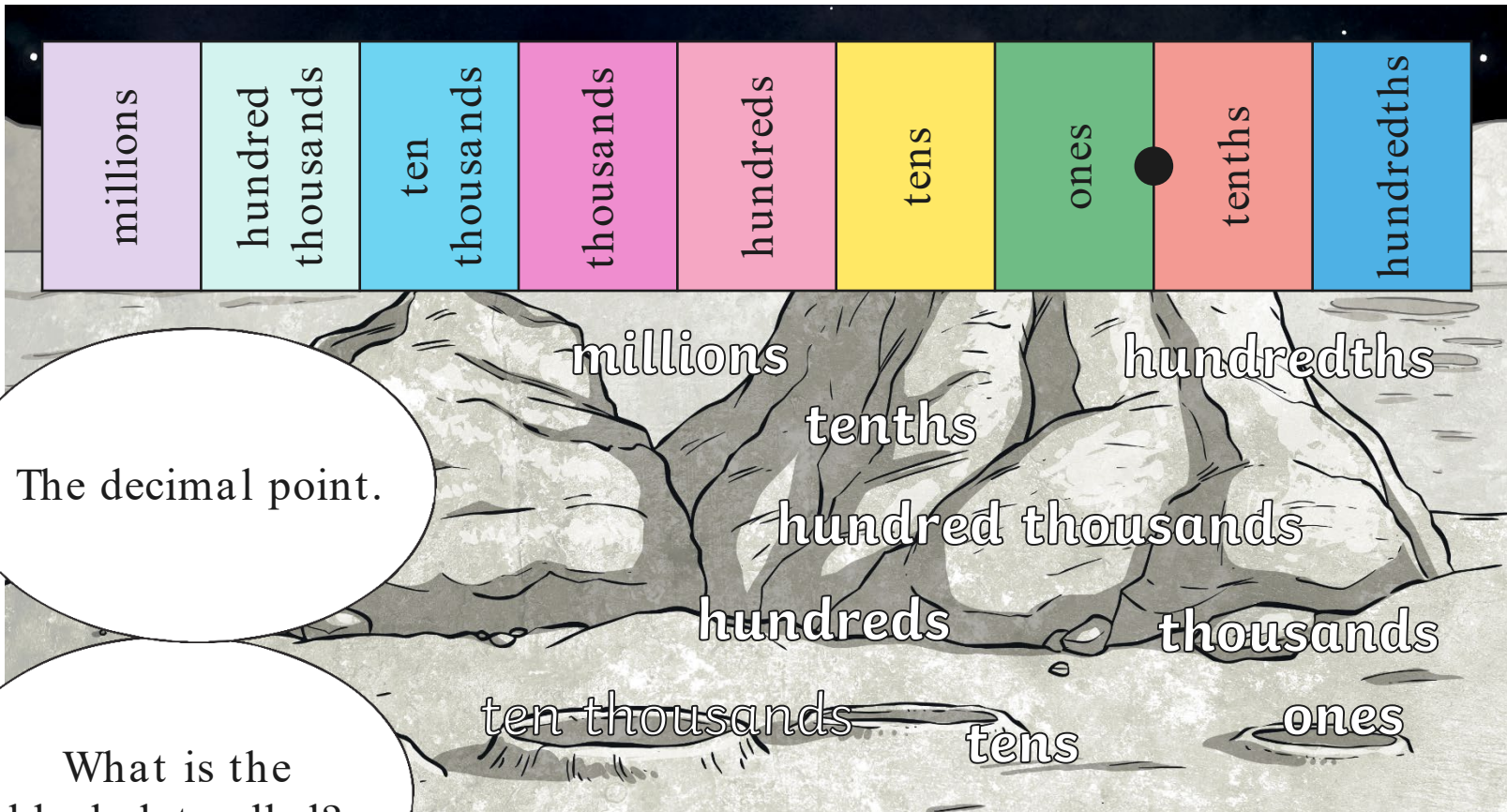
What is the black dot called?



# Place Value Grid



With your partner, work out where these labels need to go on the place value grid.

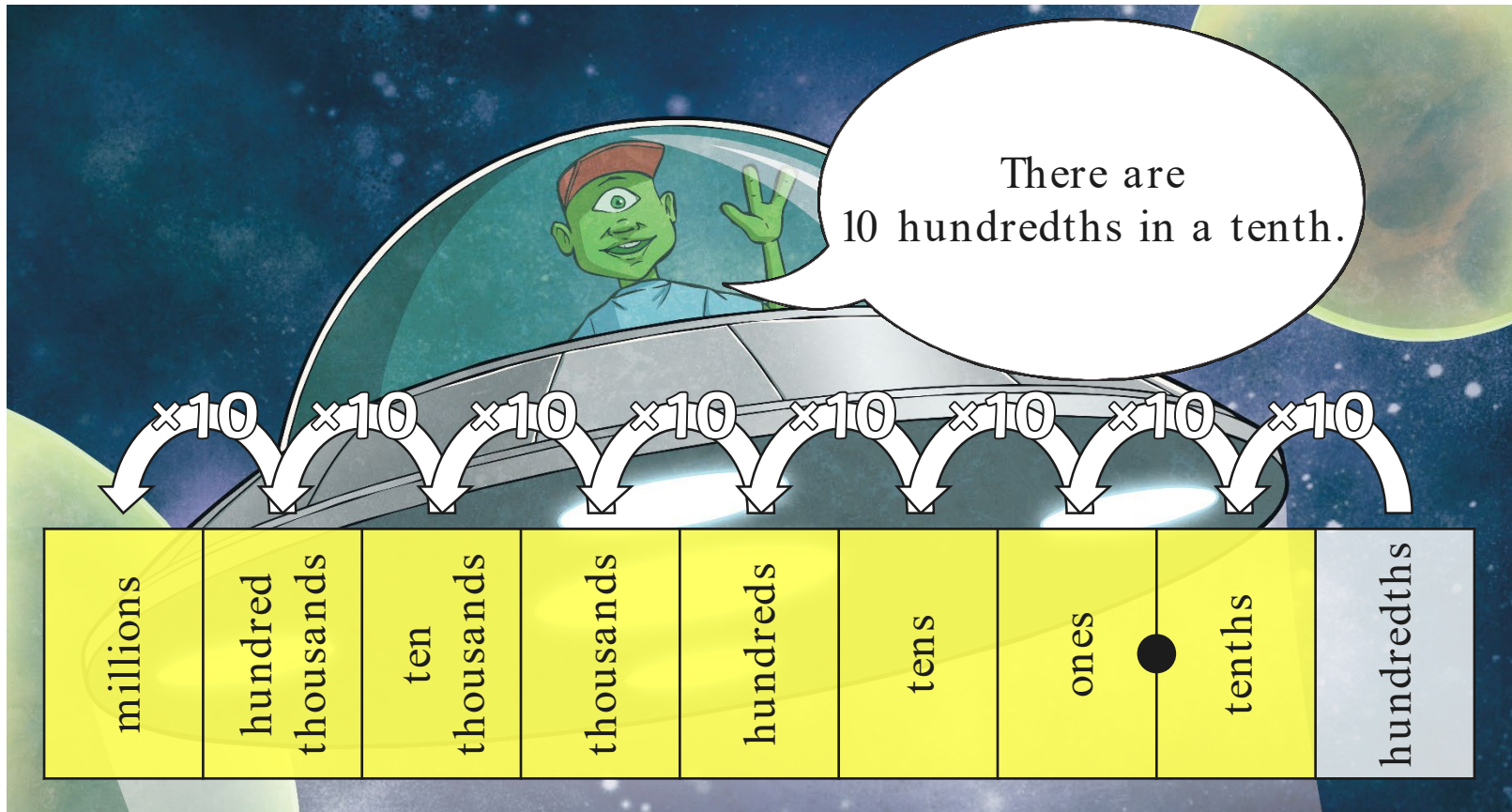


The decimal point.

What is the black dot called?

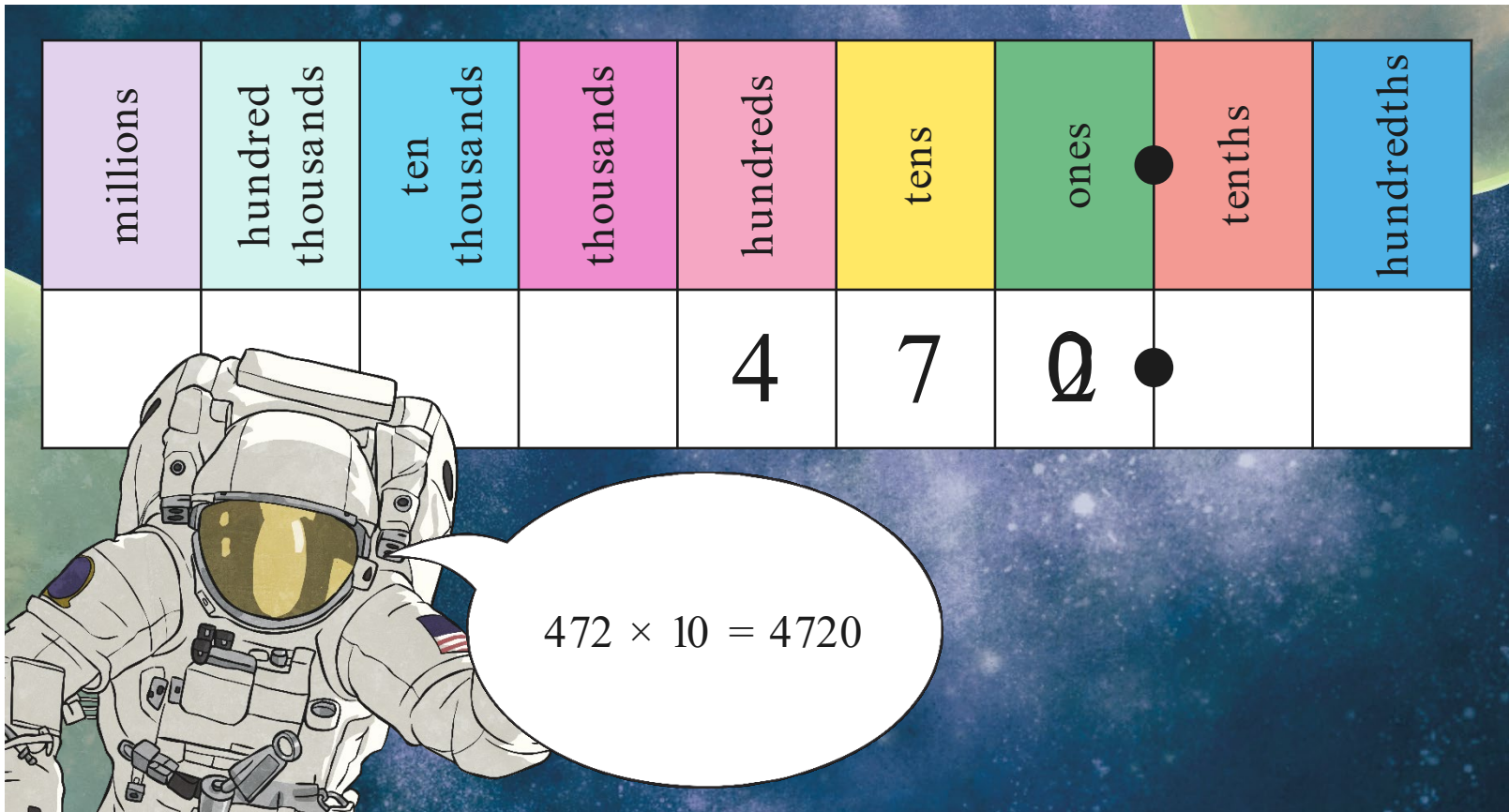
# 10 Times Bigger

As we move along the grid from right to left,  
the numbers get 10 times bigger.



# Multiplying by 10

When we multiply by 10, the number gets 10 times bigger.  
The whole number moves one place to the left.

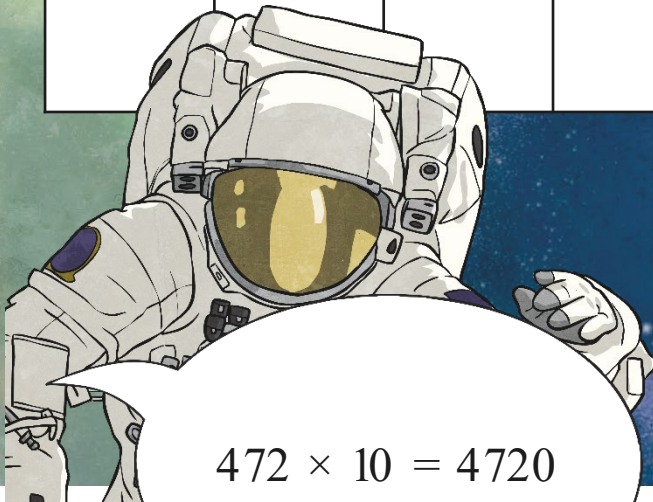




# Multiplying by 10

When we multiply by 10, the number gets 10 times bigger.  
The whole number moves one place to the left.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
				4	7	0		

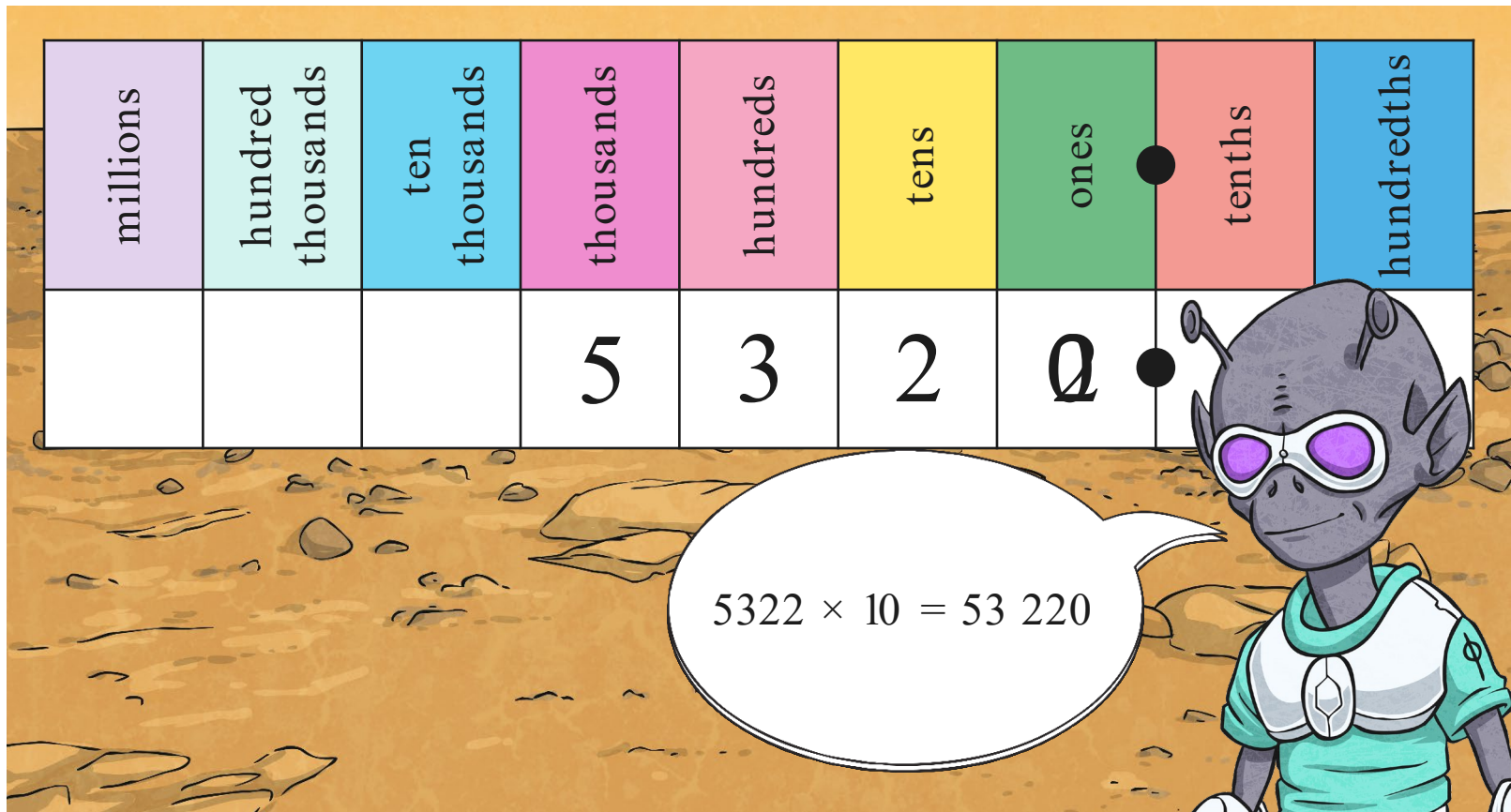


$$472 \times 10 = 4720$$

- When we multiply by 10, the number gets 10 times bigger.
- The whole number moves one place to the left.
- We can't have an empty space before the decimal point.
- So we put a zero in here as a place holder. There are 0 ones.

# Multiplying by 10

When we multiply by 10, the number gets 10 times bigger.  
The whole number moves one place to the left.




# Multiplying by 10

When we multiply by 10, the number gets 10 times bigger.  
The whole number moves one place to the left.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
			5	3	2	0		

- When we multiply by 10, the number gets 10 times bigger.
- The whole number moves one place to the left.
- We can't have an empty space before the decimal point.
- So we put a zero in here as a place holder. There are 0 ones.



$5322 \times 10 = 53\,220$



## You try

- $36 \times 10 =$
- $250 \times 10 =$
- $8015 \times 10 =$
- $79, 831 \times 10 =$

# Multiplying by 100



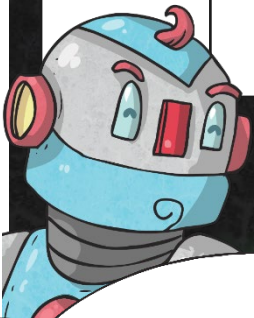
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
			6	4	0	0		

  $6420 \times 100 = 642\,000$

# Multiplying by 100



millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
			6	4	0	0	.	



$$6420 \times 100 = 642\,000$$

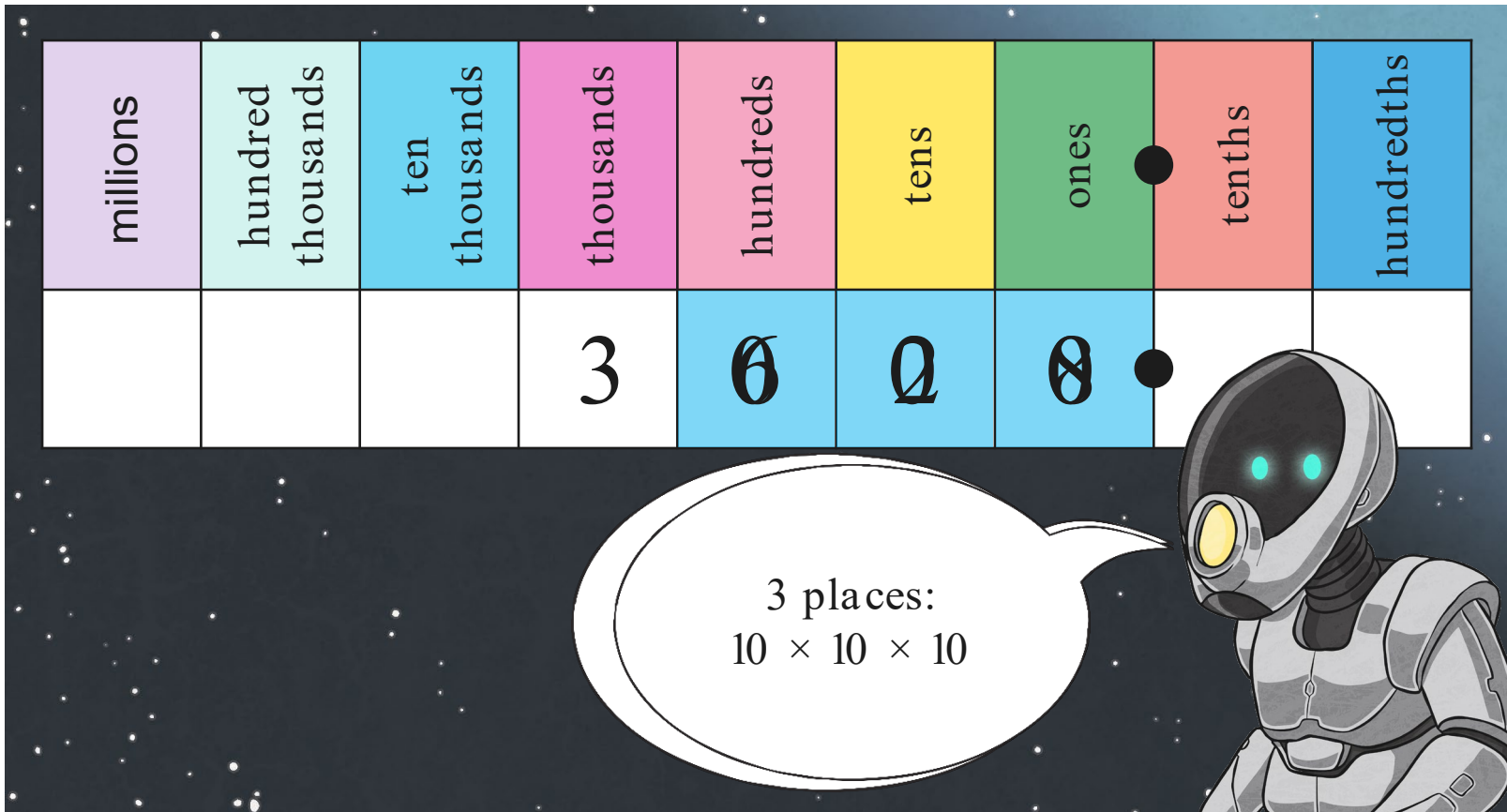
- When we multiply by 100, what happens?
- The number gets 100 times bigger.
- How many places to the left do you think each digit needs to move now?
- 2 places because we are making the number 10 times bigger, then 10 times bigger again.
- What do you think we do in the highlighted squares?
- We can't have empty spaces before the decimal point.
- So we put 2 zeros in here as place holders.
- There are 0 ones and 0 tens.



## You try

- $56 \times 100 =$
- $876 \times 100 =$
- $1050 \times 100 =$
- $10,458 \times 100 =$

# Multiplying by 1000



# Multiplying by 1000



millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths
			3	0	0	0	.	

- When we multiply by 1000, what happens?
- The number gets 1000 times bigger.
- How many places to the left do you think each digit needs to move now?
- 3 places:  $10 \times 10 \times 10$

A cartoon robot with a grey and white body, a large black visor with two glowing blue eyes, and a yellow light on its chest. It is standing against a dark background with white stars.



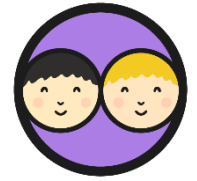
## You try

- $5 \times 1000 =$
- $889 \times 1000 =$
- $2050 \times 1000 =$
- $12,500 \times 1000 =$

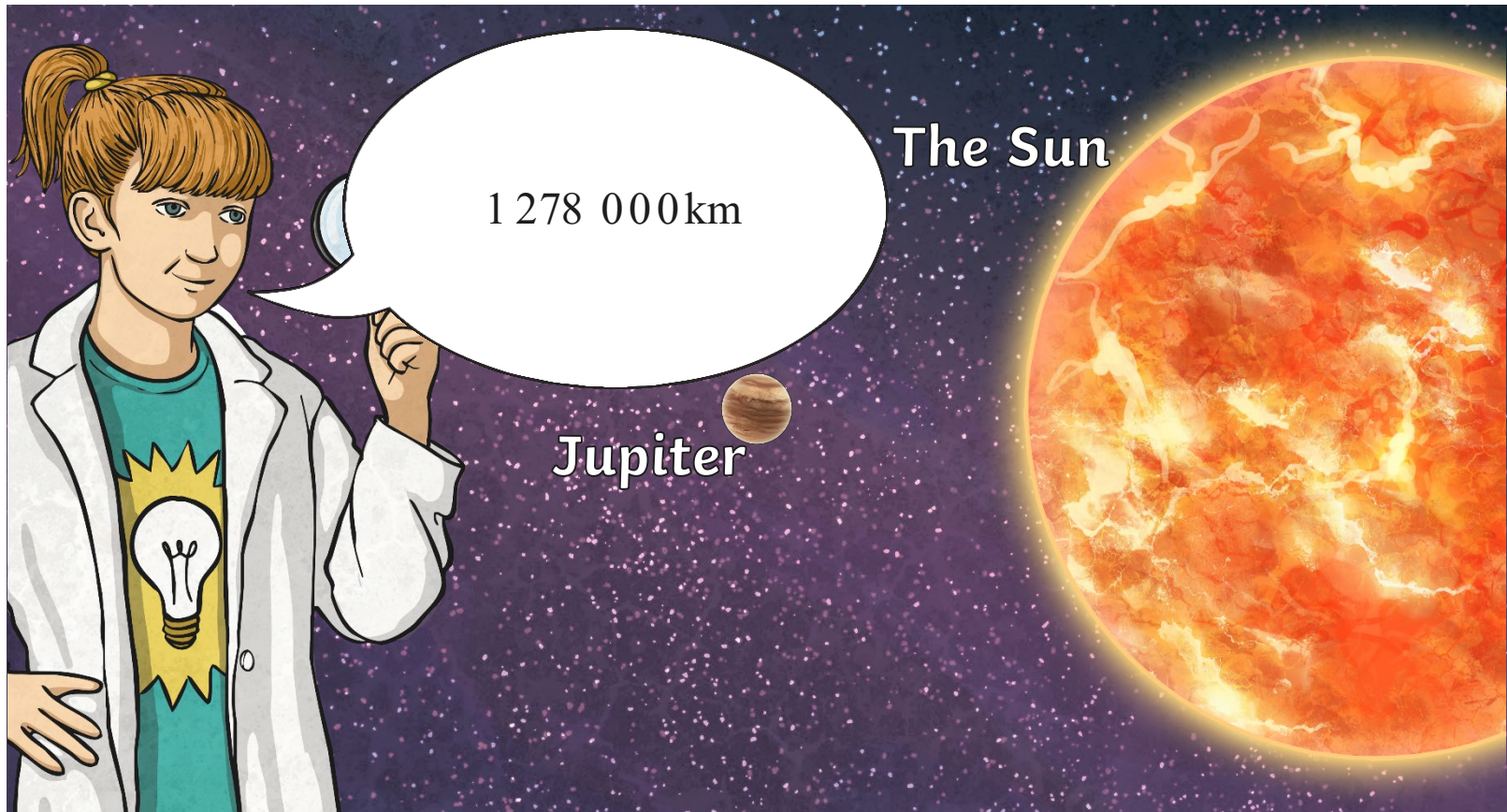
# Can you do these?

- $89 \times 100 =$
- $7050 \times 10 =$
- $865 \times 1000 =$
- $701 \times 100 =$
- $205 \times 1000 =$

# Planet Proportions

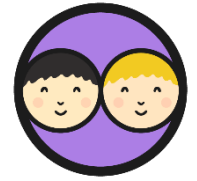


What shape are planets?





# Planet Proportions



These new planets have just been discovered.  
Can you calculate their diameters?

Name of Planet	Clue	Diameter (km)
Athena		126 723
Apollo	diameter is 10 times bigger than Juno	12 672 300
Vulcan	diameter is 10 times bigger than Vesta	529 830
Vesta		52 983
Ceres	diameter is 100 times bigger than Vesta	5 298 300
Juno	diameter is 10 times bigger than Athena	1 267 230

twinkl