

# **LINING UP**

# Picture Puzzles

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Publisher ... Mathematics Centre  
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This Picture Puzzle is based on  
... Task 11, Lining Up  
Teaching Notes  
... [mathematicscentre.com/picturepuzzles/teachingnotes.htm](http://mathematicscentre.com/picturepuzzles/teachingnotes.htm)

# Picture Puzzles

## To Do

1. Find your own way to calculate people in a line.
2. Explain other ways to calculate people in a line.
3. Calculate using your own way and other ways.

## You Need

- Poly Plug, or other objects in 2 colours

# Picture Puzzles

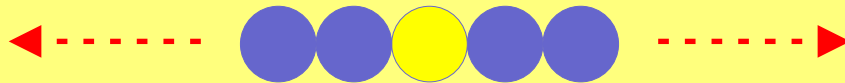




Your class is lining up in one line.

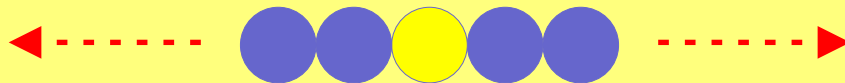
Your class is lining up in one line.  
You are twelfth (12th) from each end.

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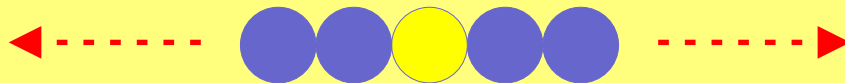


Your class is lining up in one line.  
You are twelfth (12th) from each end.



How many people in the line?

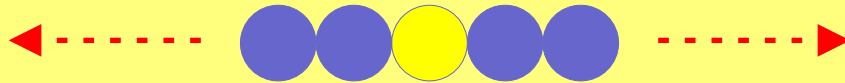
Your class is lining up in one line.  
You are twelfth (12th) from each end.



How many people in the line?

Explain in your journal.

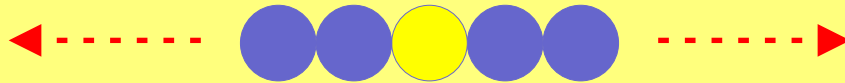
Your class is lining up in one line.  
You are sixth (6th) from each end.



How many people in the line?  
Explain in your journal.

Your class is lining up in one line.

You are nineteenth (19th) from each end.



How many people in the line?

Explain in your journal.

**If I tell you any number (N) from each  
end can you tell me how to calculate  
the number of people (P) in the line?**

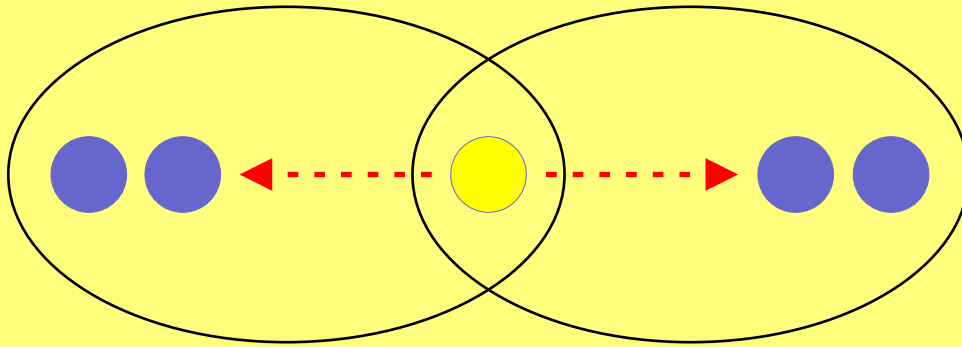
**Explain in your journal and calculate the number of people in the line if you are hundredth (100th) from each end.**

**Picture  
Puzzles**

**more**

**Picture  
Puzzles**

Evo sees it like this

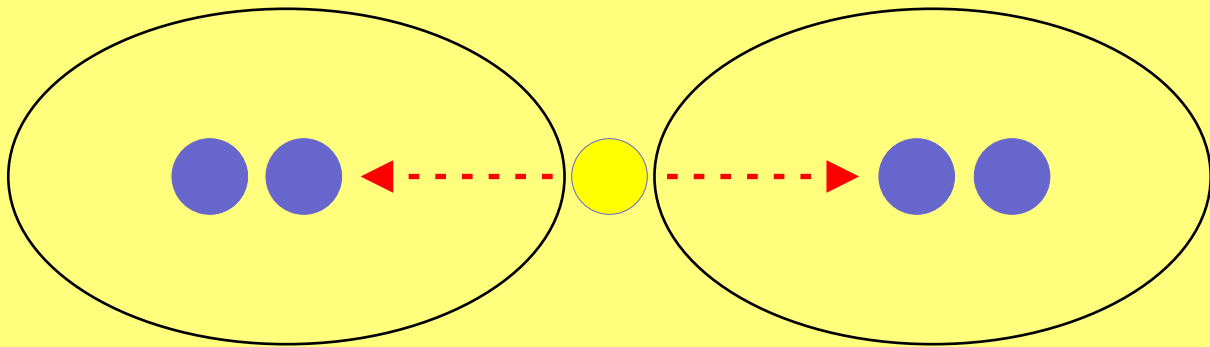




**Explain Evo's way and use it to  
calculate the number of people  
if he is 35th from each end.**

**Investigate using Evo's way to calculate  
his position from each end if there  
are 29 people in the line.**

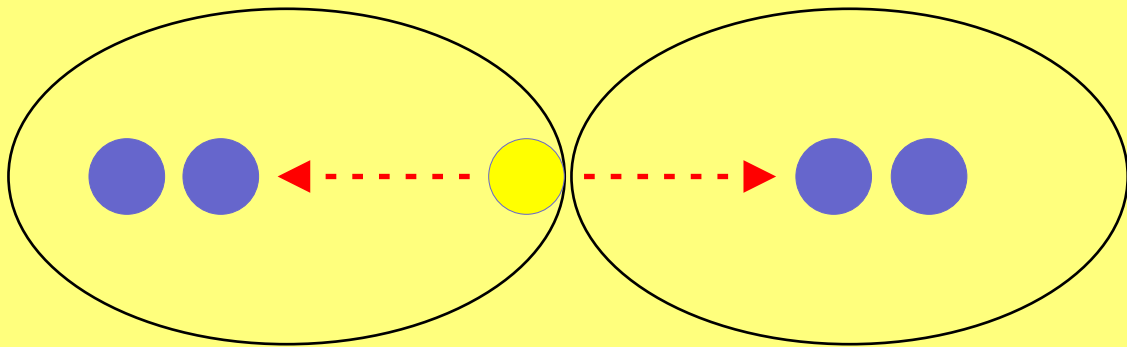
Maya sees it like this



**Explain Maya's way and use it to  
calculate the number of people  
if she is 50th from each end.**

**Investigate using Maya's way to calculate  
her position from each end if there  
are 107 people in the line.**

Ishan sees it like this



**Explain Ishan's way and use it to  
calculate the number of people  
if he is 84th from each end.**

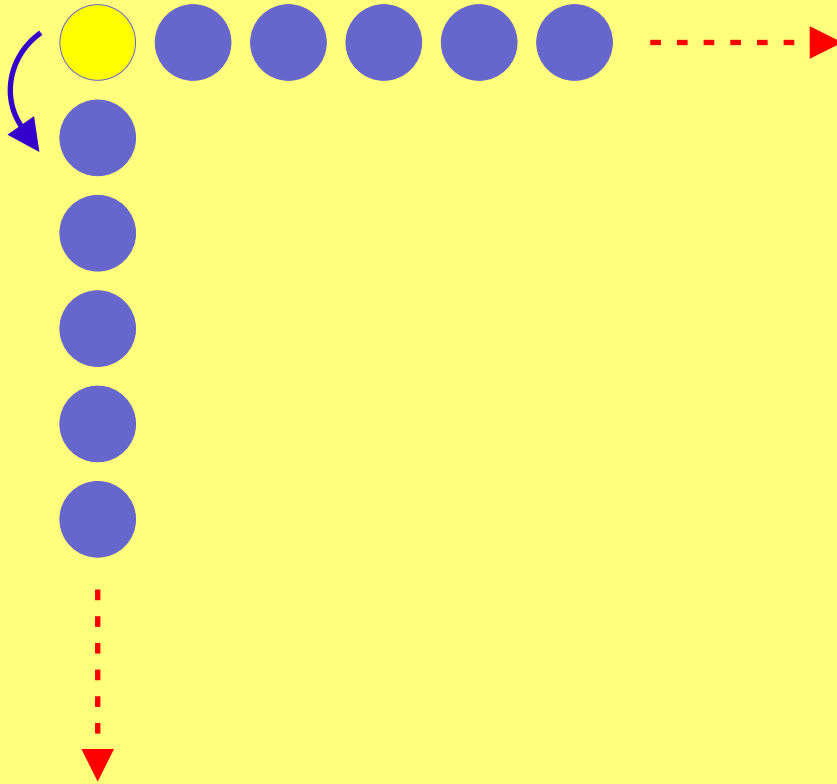
**Investigate using Ishan's way to calculate his position from each end if there are 85 people in the line.**



**even more**

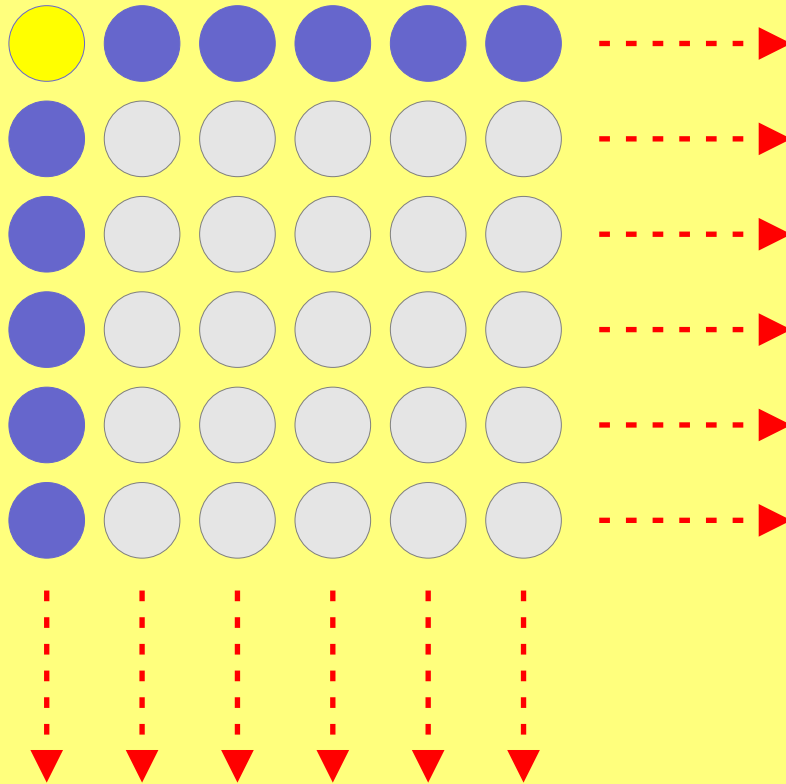
# Picture Puzzles

Ameli sees it like this

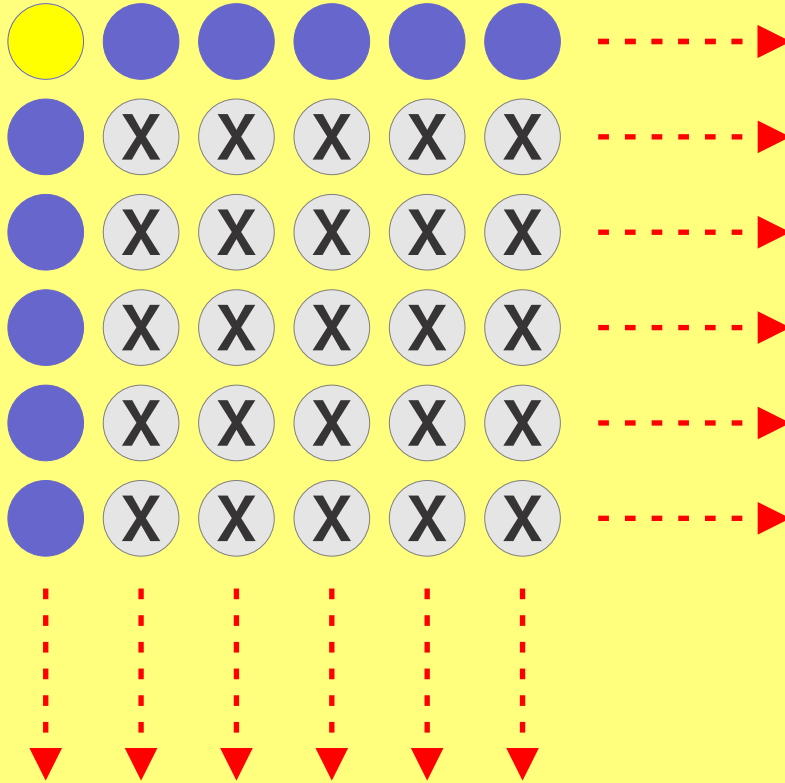


# Picture Puzzles

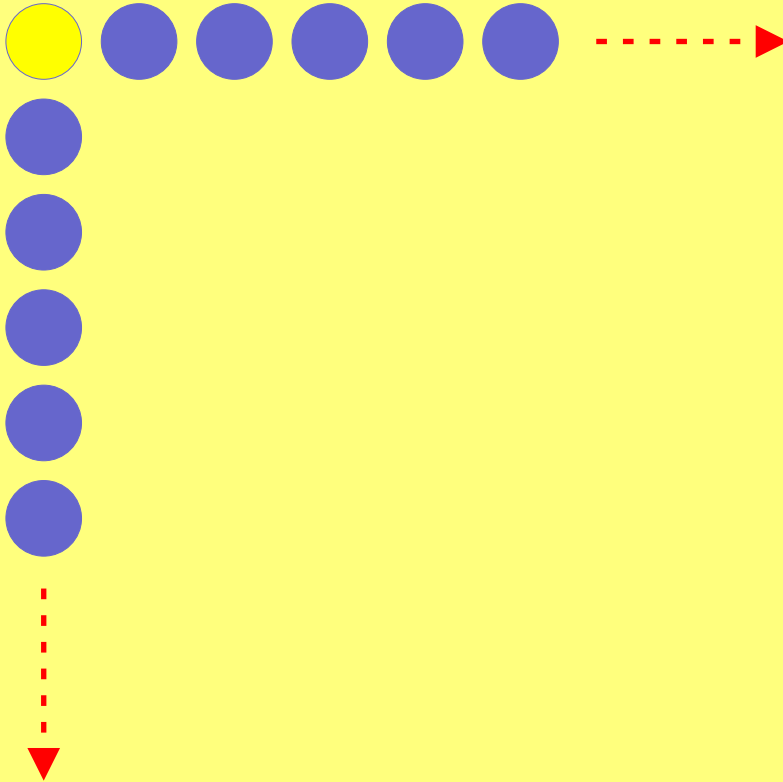
Then she imagines extra people



# Picture Puzzles



Surprise!



**Explain Ameli's way and use it to  
calculate the number of people  
if she is 90th from each end.**

**Investigate using Ameli's way to calculate  
her position from each end if there  
are 37 people in the line.**

THE END...

...OR IS IT?