

# UNSEEN TRIANGLES

# Picture Puzzles

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Publisher ... Mathematics Centre  
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This Picture Puzzle is based on  
... Task 179, Unseen Triangles  
Teaching Notes  
... [mathematicscentre.com/picturepuzzles/teachingnotes.htm](http://mathematicscentre.com/picturepuzzles/teachingnotes.htm)

# Picture Puzzles

## To Do

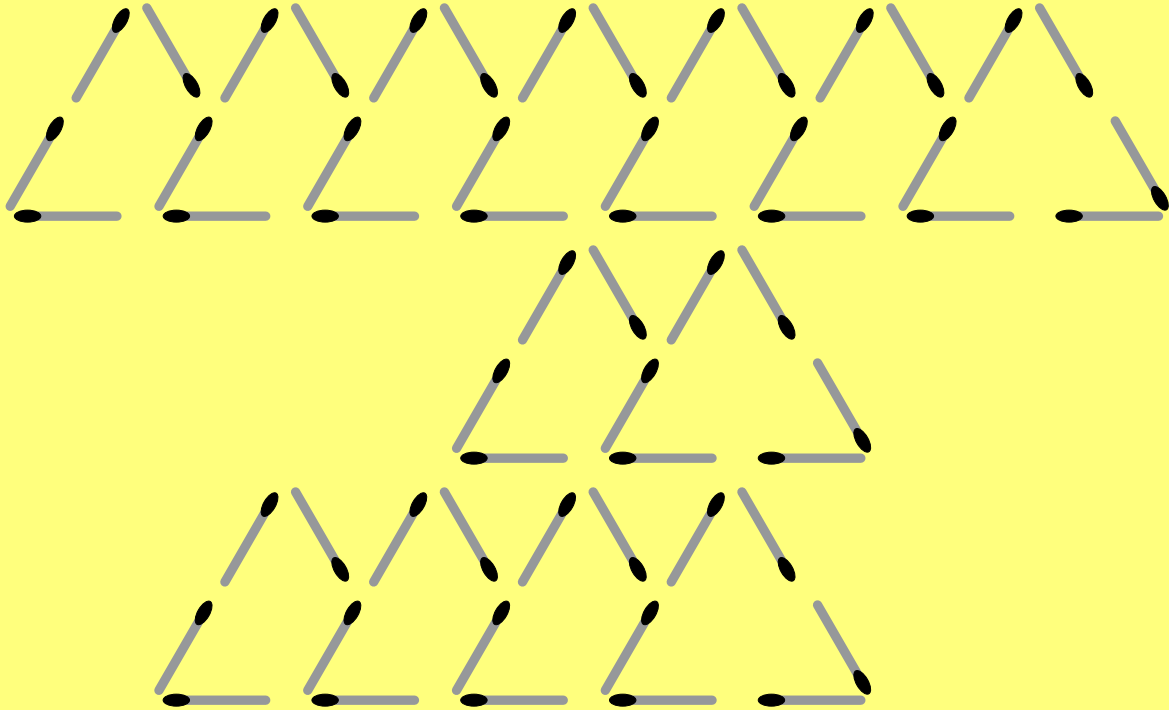
1. Find your own way to connect triangles & matches.
2. Explain other ways to connect triangles & matches.
3. Calculate using your own way and other ways.

## You Need

- About 30 sticks the same length ( $< 10\text{cm}$ )
- Triangle dot paper

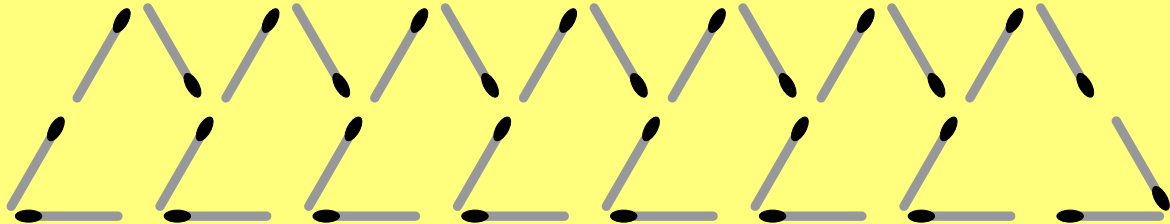
# Picture Puzzles

These are examples of mountain peaks.

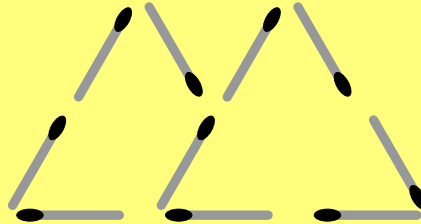


# Picture Puzzles

These are examples of mountain peaks.

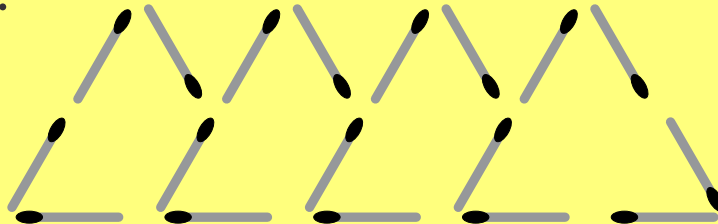


Make your own  
peaks like  
these.



Draw them.

Record the  
numbers of  
peaks and  
matches.



**If I tell you any number of peaks ( $P$ )  
can you tell me how to calculate  
the number of matches ( $M$ ) to make it?**

**Explain in your journal and calculate  
the number of matches for 100 peaks.**

**Picture  
Puzzles**

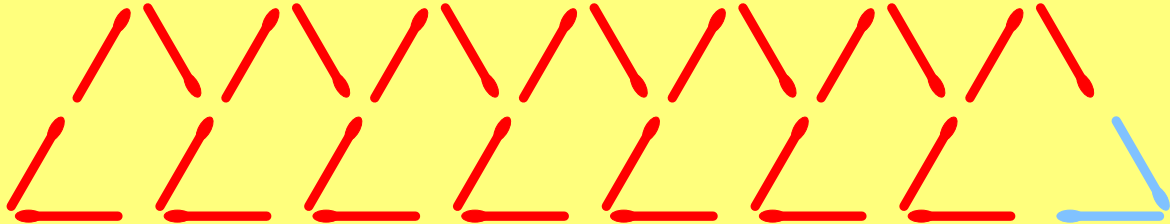
**more**

**Picture  
Puzzles**



# Picture Puzzles

Ben sees it like this

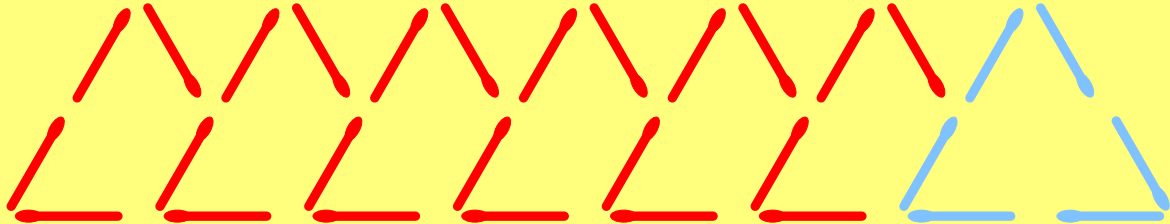


**Explain Ben's way and use it to  
calculate the number of matches (M)  
for 39 mountain peaks (P).**

**Investigate using Ben's way to  
calculate the number of peaks he can  
make if he only has 54 matches?**

# Picture Puzzles

Dani sees it like this

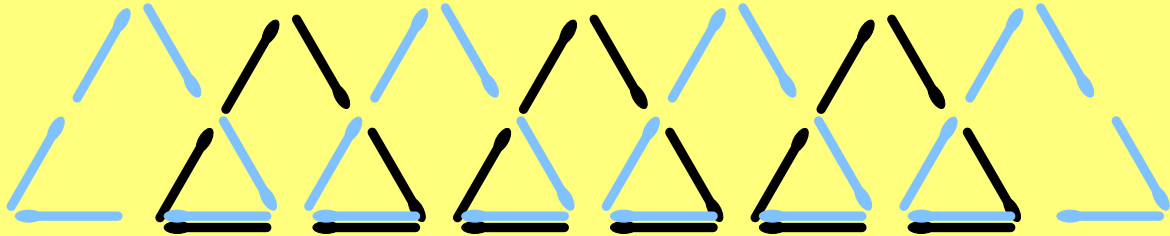


**Explain Dani's way and use it to  
calculate the number of matches (M)  
for 44 mountain peaks (P).**

**Investigate using Dani's way to  
calculate the number of peaks she  
can make if she only has 102 matches.**

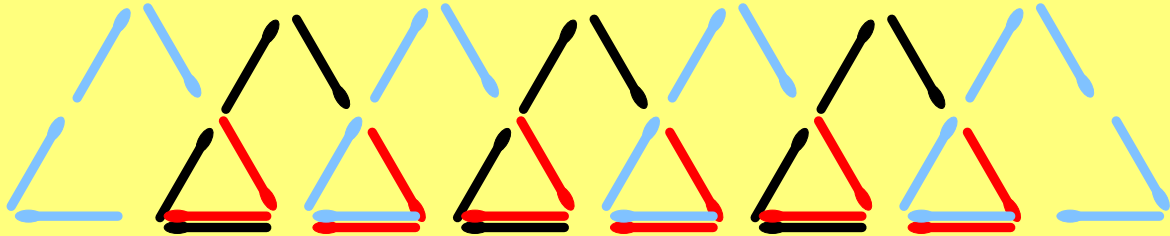
# Picture Puzzles

Adrian sees it like this



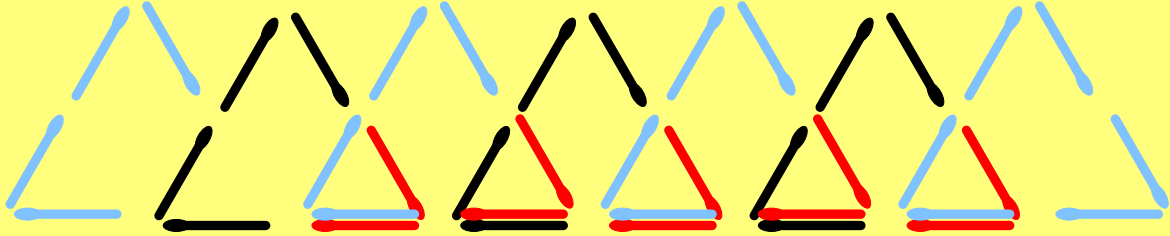
# Picture Puzzles

*Now I can make the unseen triangles.*

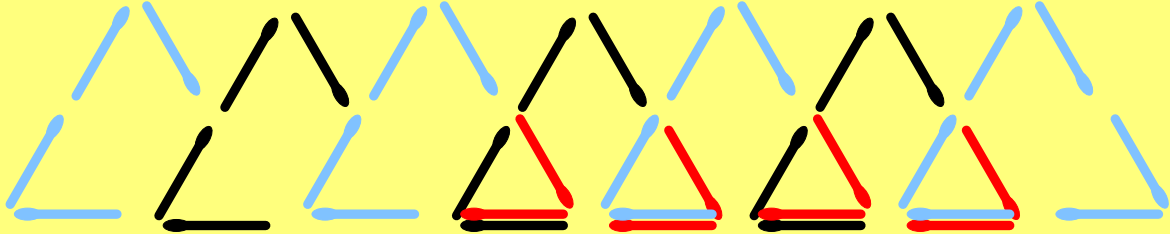




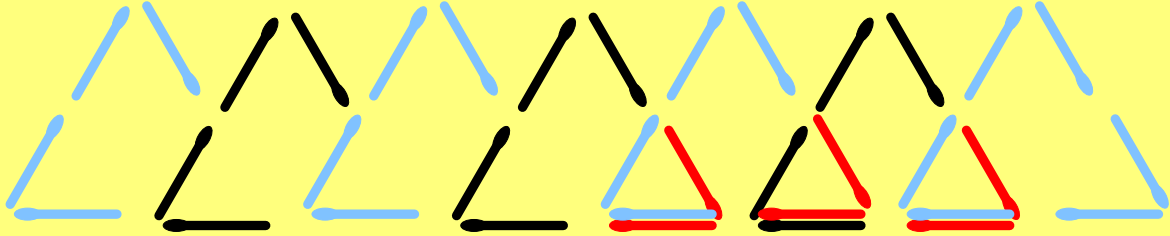
# Picture Puzzles



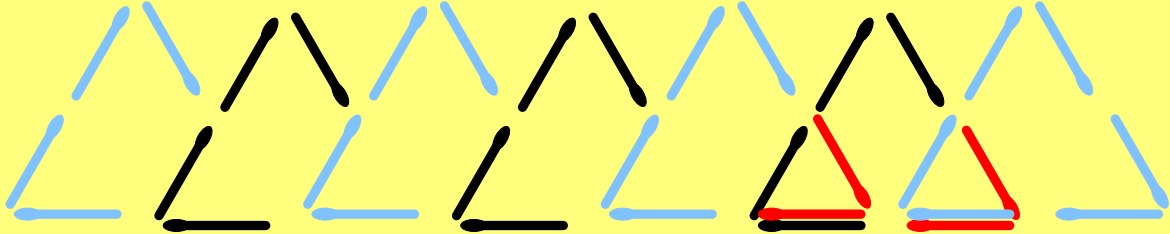
# Picture Puzzles



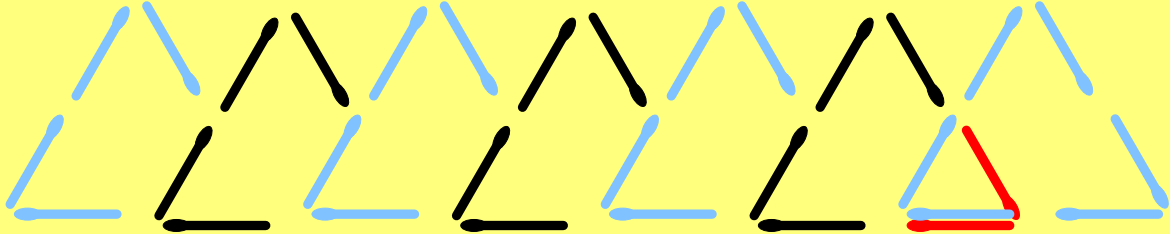
# Picture Puzzles



# Picture Puzzles

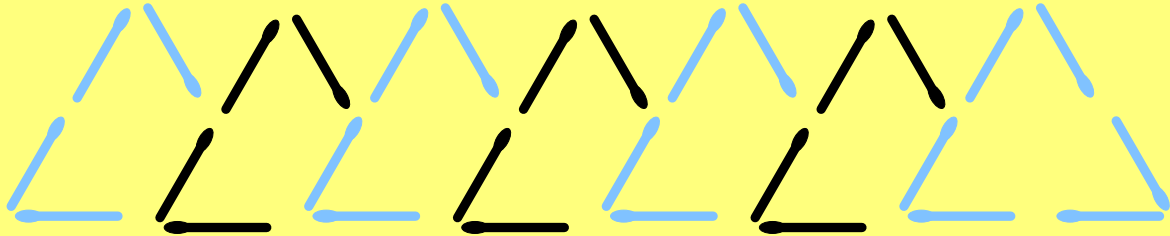


# Picture Puzzles



# Picture Puzzles

*Aha!*



**Explain Adrian's way and use it  
to calculate the number of  
matches for 82 peaks.**

**Investigate using Adrian's way to calculate  
the number of triangles he can make  
if he only has 38 matches.**



THE END...

...OR IS IT?