

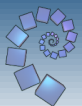
# Leadership for Learning Project 2017-18

29<sup>th</sup> November

Mowlem Primary School

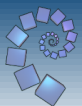
Alison Borthwick [alb207@cam.ac.uk](mailto:alb207@cam.ac.uk)

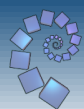
Fran Watson [fw279@cam.ac.uk](mailto:fw279@cam.ac.uk)



# Teacher Takeaway

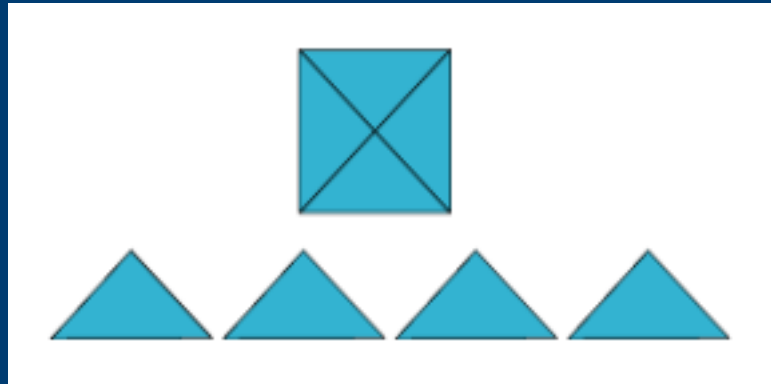
1. Try the Four Triangles Puzzle (141)
2. Try **either** Magic Vs (6274) **or** Money Bags (1116)
3. Use your rubric to assess the two tasks
4. Reflect on your assessment
5. Bring some children's work and your completed rubrics to Day 2



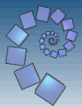


# Four Triangles Puzzle (141)

If you cut a square diagonally from corner to corner in both directions, you get four right-angled isosceles triangles.



How many different shapes can you make using all 4 shapes?



# Reflect

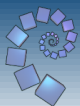
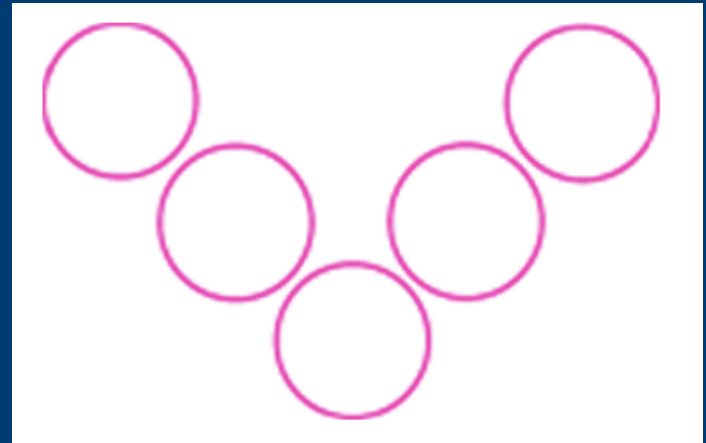
- What did you notice?
- Did anything surprise you?
- What would you do differently/additionally next time?



# Magic Vs (6274)

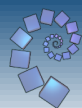
Place each of the numbers 1-5 into the V shape, so that each arm of the V has the same total.

How many solutions can you find?



# Reflect

- What did you notice?
- Did anything surprise you?
- What would you do differently/additionally next time?



# Money Bags (1116)

Ram divided 15 pennies among four bags. He labelled each bag with the number of pennies inside it.

He could then pay any sum of money from 1p to 15p without opening any bag.



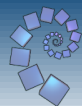
How much did he put in each bag?





# Reflect

- What did you notice?
- Did anything surprise you?
- What would you do differently/additionally next time?



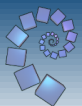
# Rubric Speed-dating

What went well?

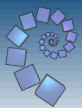
Adjustments/improvements?

Any reflective questions?

4 minutes  
each way



# Developing PS skills



# Problem-solving Process

## 1. Getting started

try a simpler case

draw a diagram

represent with model

act it out

## 2. Working on the problem

work backwards

reason logically

conjecture

work systematically

look for a pattern

visualise

trial and improvement

## 3. Digging deeper

generalise

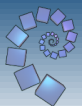
verify

prove

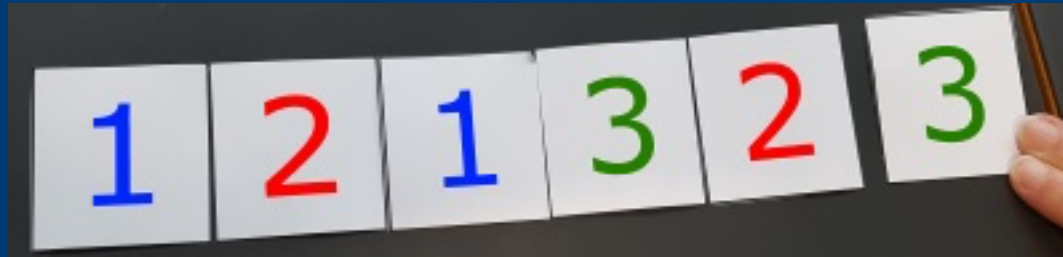
## 4. Concluding

communicate findings

evaluate

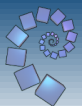


# Sandwiches (522)



What do you notice about this picture?

Is it possible to rearrange the digits to have three digits between the pair of 3s as well as two digits between the 2s and one digit between the 1s?



# Which Scripts? (774)

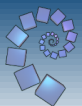
There are six numbers written in five different scripts.

Can you sort out which is which?

Can you write 51 in each script?

Can you name the scripts?

Do you know any other scripts?



# Reach 100 (**1130**)

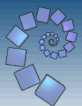
Draw a grid like this

5	2
1	9

Write a digit in each box

This gives four two-digit numbers

How many solutions can you find where these four numbers add to 100 exactly?



# Teacher Takeaway

1. Try Number Sandwiches (522)
2. Try Which Scripts (774) and/or Reach 100 (1130)
3. Use your rubric to assess the tasks
4. Reflect on your assessment
5. Bring your completed rubrics to Day 3 along with any reflections/evidence you would like to.





# References/mentions

- Education Endowment Foundation report  
"Improving Mathematics in Key Stages 2  
and 3"  
<https://educationendowmentfoundation.org.uk/tools/guidance-reports/maths-ks-two-three>
- NRICH primary feature exemplifying problem  
solving skills with specific tasks  
<https://nrich.maths.org/10334>

