

STOPS D2- Lesson Plan

Name

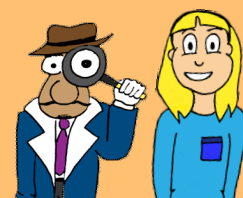
STOPS D2 - Wobs and Weps

Learning Intention

To solve a problem by making a list or table

Resources

Large version of table or on IWB.



Teaching notes

Show problem to children and ensure that they understand. Allow children a few minutes to attempt the problem and see what strategies they are using. Model or share the work of children how we could start with a trial and error solution, e.g. 5 Wobs and 7 Weps. $5 \times 3 = 15$ and $7 \times 2 = 14$ which gives us 29 eyes altogether. Establish that repeating this strategy is not very efficient as it could take a long time and we won't know if we have found all the solutions.

Model a more systematic approach, for example, if I have 2 Wobs, that gives 6 eyes. $31 - 6 = 25$ but I cannot make 25 eyes with Weps as it is an odd number. Discuss how to record this "failed" trial and model how we might use a table to record our attempts.

Allow children a further 5-10 minutes to attempt the problem.

Bring children back together and share strategies so far. Discuss that the number of eyes from the Wobs must be a multiple of 3, so writing the multiplies of 3 might be useful. Establish that the Weps must have a number of eyes that is a multiple of 2, so writing the multiples of 2 might also be useful. Now you will have 2 lists on the board:

3, 6, 9, 12, 15, 18, 21, 24, 27, 30

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30

Discuss that if we find two numbers that add up to make 31 then we have a solution and making a list has helped us. Allow children more time to find all 5 solutions and share strategies for how they did it. Encourage children to verbalise or write how they solved the problem and how making the list helped by making it more systematic.



Key Questions:

- How can we start?
- What is the problem with using trial and error? How can we be more systematic?
- How will we record our attempts? Could making a list or table help us?
- What numbers of eyes can there be just from the Wobs? And the Weps?
- How can using multiples of 2 and 3 help us?
- How do you know you have found all possible solutions?

Differentiation:

Higher: STOPS D3
 Lower: STOPS D1

Extension: What if there were 51 eyes altogether? List all solutions.
 Lower: Give children the multiples of 2 and 3 already written in a table. If needed, modify the problem to read "What if there are 22 eyes altogether?"

Solutions:

- 1 Wob (3 eyes) and 14 Weps (28 eyes)
- 3 Wobs (9 eyes) and 11 Weps (22 eyes)
- 5 Wobs (15 eyes) and 8 Weps (16 eyes)
- 7 Wobs (21 eyes) and 5 Weps (10 eyes)
- 9 Wobs (27 eyes) and 2 Weps (4 eyes)

Extension solution:

- 1 Wob (3 eyes) and 24 Weps (48 eyes)
- 3 Wobs (9 eyes) and 21 Weps (42 eyes)
- 5 Wobs (15 eyes) and 18 Weps (36 eyes)
- 7 Wobs (21 eyes) and 15 Weps (30 eyes)
- 9 Wobs (27 eyes) and 12 Weps (24 eyes)
- 11 Wobs (33 eyes) and 9 Weps (18 eyes)
- 13 Wobs (39 eyes) and 6 Weps (12 eyes)
- 15 Wobs (45 eyes) and 3 Weps (6 eyes)

Lower solution:

- 4 Wobs (12 eyes) and 5 Weps (10 eyes)
- 6 Wobs (18 eyes) and 2 Weps (4 eyes)