

## What if.....

- .....you hid a different number of spots?
- .....you looked for the highest total you could hide?
- .....you looked for the lowest total you could hide?
- .....you added the spots you can see?
- .....you had three dice?



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## Hidden Spots Challenge

I put one dice on top of another.

7 spots were hidden.

I wonder if I can hide 7 spots in a different way .....



**Engage in the challenge-** before tackling the challenge, let learners discuss what they think the challenge is about. Encourage learners to say what they see. Use large dice to model the challenge. Ask learners to use two dice to show what Digit Dog has done.

**What do you notice? What has Digit Dog been doing? Explain the challenge in your own words. Which numbers are hidden?**

Encourage learners to comment on each others' explanations: Do you agree with what your friend has just said?

**What do you think the answer will be?**

Encourage learners to make estimations and predictions. Can you hide 7 spots in a different way? How many ways do you think you can hide 7 spots? Why do you think that?

**Calculating Cat said...**



There will be 4 ways to hide 7 spots.

**What do you think? Do you agree with her? Why/why not?**

**Do the challenge**

Ask learners to suggest ways of tackling the challenge and recording their work.

**Ask:** How are you going to remember the different ways you have found?

Provide enough dice so that different pairs can be shown as results. How many ways can you hide 7 spots? Have you found all the ways? How do you know? How can you check if you've missed any?

**Organise your work**

Encourage learners to organise their work, to be systematic and to look for patterns.

**Suggest:** lining up the pairs of dice and looking for patterns. Writing the spots that are hidden on separate pieces of paper and sorting / comparing them.

Put the answers in order. What patterns do you notice? If you hide 1 on the top dice, what number do you hide on the bottom one? What about 2 on the top dice?



**Be a pattern sniffer**

**Explain your thinking**

Encourage learners to describe and explain what they are doing.

Look for use of correct mathematical language.

Describe what you have done. How did you find the different ways to hide 7 spots? Did you find all the possible ways?

How do you know? Convince yourself. Convince a friend. Prove it!