

Nim Week – Number Y3/4

You will need:

- Someone to play the games with each day.
This could be a toy character (like an action figure or a Lego person) or an imaginary character (like a Minion or Harry Potter). Choose someone who won't cheat or get too angry if they lose.



- Lots of small things you can use as counters like pasta shapes, Lego bricks, stones, leaves etc.



Email: LDP-SchoolImprovementTeam@babcockinternational.com

Website: www.babcockldp.co.uk/improving-schools-settings/mathematics

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Nim Week – Number Y3/4

Day 1

- You need a pile of 20 of your counters.
- Take it in turns to take either 1, 2 or 3 counters from the pile.
- The **loser** is the player who takes the last counter.
- Play again, and again...
- Can you find the winning strategy?
- Does it matter who starts?

Notes for adults working with groups of children

- Encourage the children to say how many they are taking and to take them in one go.
- Help the children to identify key points in the game.
- Help them to describe and use the strategy to win.

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Day 2

- You need **two** piles of 10 counters this time.
- Take it in turns to choose a pile and take either 1, 2 or 3 counters from the pile.
- The **loser** is the player who takes the last counter.
- Play again, and again...
- Can you find the winning strategy?
- Does it matter who starts?

Notes for adults working with groups of children

- Encourage the children to say how many they are taking and to take them in one go.
- Help the children to identify key points in the game.
- Help them to describe and use the strategy to win.

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Day 3

- Try playing one of the games from days 1 and 2 but this time the **winner** is the player who takes the last counter.
- Play again, and again...
- Can you find the winning strategy?
- Has the strategy changed?
- Does it matter who starts?

Notes for adults working with groups of children

- Encourage the children to say how many they are taking and to take them in one go.
- Help the children to identify key points in the game.
- Help them to describe and use the strategy to win.

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Day 4

- You need one pile of 19 of your counters.
- Take it in turns to take either 1, 2 or 3 counters from the pile.
- The **winner** is the player who has an **odd** number of counters at the end of the game.
- Play again, and again...
- Can you find the winning strategy?
- Now put your 19 counters into two piles (e.g. 10 and 9 or 7 and 12) and play again.
- Has the winning strategy changed?
- Does it matter who starts?

Notes for adults working with groups of children

- Encourage the children to say how many they are taking and to take them in one go.
- Help the children to identify key points in the game.
- Help them to describe and use the strategy to win.

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Day 5

- You need one pile of 19 of your counters.
- Take it in turns to take either 1, 2, 3 or 4 counters from the pile.
- The **winner** is the player who has an **odd** number of counters at the end of the game.
- Play again, and again...
- Can you find the winning strategy?
- What difference do you think it would make if you could take 1, 2, 3, 4 or 5 counters? Try it and see?

Notes for adults working with groups of children

- Encourage the children to say how many they are taking and to take them in one go.
- Help the children to identify key points in the game.
- Help them to describe and use the strategy to win.

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