| **Countdown!** | **Skills practised:** |
|---|---|
| *Children take turns to subtract 11, 12 or 13 from a 2-digit number greater than 50. They develop and explain strategies to help them win by reaching a number <10 first.* | • Subtracting 11, 12 or 13 from 2-digit numbers. |

**Conjecture:** *We can work out a way to help us win the game.*

**What to do:**

*Children play the game in pairs or a group of three.*

1. Take turns to play.
2. One of you writes a 2-digit starting number. It must be bigger than 50, e.g. 72.
3. The next person has to subtract either 11, 12 or 13 and write the new number underneath, e.g. you subtract 12 from 72 and write/ say 60.
4. The first person must continue, subtracting 11, 12 or 13 from 60, e.g. they subtract 13 from 60 and write/ say 47.
5. Continue like this.
6. The first person to reach a number **less than 10** is the winner.
7. Play again, starting with a different number.

Discuss anything you notice about useful strategies.
- Are there any key numbers to think about [**HINT** Does it matter who writes 22…?]
- Does the starting number make a difference to the outcome?

8. Play several times and start to refine your strategies.
9. Discuss good ways of becoming the winner

**CHALLENGE!** Write some advice to a new player. What will you tell them to do, or to watch out for?

| **Aims** | **Minimum number of calculations expected** |
|---|---|
| – To think ahead and plan what might happen.<br>– To develop strategies to win a game. | 20-30 |

# Investigation
## Countdown!

1. Take turns to play.

2. Write a starting number.
   It must be bigger than 50, but less than 100.

3. Ask your partner to subtract either 11, 12 or 13 and write the new number underneath.

4. You do the same, subtracting 11, 12 or 13.

5. Continue like this; the irst person to reach a number less than 10 is the winner!

6. Play again, starting with a different number.
   What do you notice about good strategies?

   **72**
   **60**
   **47**

7. Play several times and start to refine your strategies.
   - Are there any important numbers to think about?
   - Does the starting number make a difference to who wins?

---

### Challenge

Write some advice to a new player. What will you tell them to do, or to watch out for?

---