Key Learning: To relate multiplying by two with doubling

| $4+4=8$ | $6+6=12$ |
| :---: | :---: |
| $\bigcirc$ <br> $\bigcirc$ <br> 0 <br> 0 <br> - $5+5=10$ | $3+3=6$ |
|  |  |

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$$
\begin{array}{c|c}
4 \times 2=8 & 6 \times 2=12 \\
5 \times 2=10 & 3 \times 2=6 \\
7 \times 2=14 & 9 \times 2=18
\end{array}
$$



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| $\stackrel{\bigcirc}{\sim}$ | $\stackrel{\odot}{N}$ | $\stackrel{\ominus}{\mathrm{N}}$ | $\stackrel{\bigcirc}{\sim}$ | $\stackrel{\bigcirc}{\sim}$ | $\stackrel{\bigcirc}{\mathrm{N}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\cdots$ | $\stackrel{\infty}{\sim}$ | $\stackrel{\sim}{\sim}$ | $\stackrel{\sim}{\sim}$ | $\stackrel{\infty}{\infty}$ | $\stackrel{\sim}{+}$ |
| $\stackrel{1}{\square}$ | $\stackrel{1}{\square}$ | $\stackrel{6}{\square}$ | $\stackrel{6}{\square}$ | $\stackrel{6}{\square}$ | $\stackrel{1}{\square}$ |
| $\underset{\sim}{\downarrow}$ | $\underset{\sim}{\forall}$ | $\underset{\sim}{\downarrow}$ | $\underset{\sim}{\forall}$ | $\stackrel{\rightharpoonup}{\square}$ | $\stackrel{\rightharpoonup}{\square}$ |
| $\cdots$ | $\stackrel{\sim}{\sim}$ | $\stackrel{\sim}{N}$ | $\stackrel{\sim}{\sim}$ | $\stackrel{N}{N}$ | $\stackrel{\sim}{\sim}$ |
| $\stackrel{\ominus}{-1}$ | $\stackrel{\bigcirc}{-1}$ | $\stackrel{\bigcirc}{-1}$ | $\stackrel{\bigcirc}{-1}$ | $\stackrel{\bigcirc}{-1}$ | $\stackrel{\bigcirc}{-1}$ |
| $\infty$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ |
| 0 | 6 | 6 | 6 | 6 | 6 |
| $\nabla$ | 『 | ஏ | ナ | 『 | $\nabla$ |
| N | N | N | $N$ | $N$ | $N$ |

## Key Learning: To relate multiplying by two with doubling

Each pair has two sets of 1-10 cards and one strip containing the even numbers through 20.

Place the cards face down. Players take turns to select a card. You must double that number and write the addition and multiplication equations on a mini whiteboard. Then place a counter on the answer, if it is not already covered! The winner is the player who covers the last number!

Make sure you have access to counters or cubes and can draw arrays/bar models when doubling.

## Helpful starting point

Use the strip of numbers with pictorial representations.

## Challenge

You can only place a counter on a single digit if you placed a counter on a two-digit number on your last go.


## $2 \times 8=16$



Key Learning: To relate multiplying by two with doubling

| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | - | 0 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |

## Key Learning: To relate multiplying by two with doubling

## Double trouble

You will need a dice (1-6 or 0-9),

## How to play:

- 40 will be the target number.
- Player 1 throws the dice and doubles the number shown.
- Player 2 throws the dice and doubles their number. Player 2 adds their number onto Player 1's number to make a running total.
- Play continues like this with each player rolling the dice, doubling the number, and adding the result onto the running total.
- The winner is the player who get closest to the target.

Here are some questions to think about and explore:
Must each player always take a turn?
Does it matter if you go first or second?

