Tall Towers

I can solve scaling problems using times tables facts.

Imagine that you are a **Town Planner.**

You have been asked to build an impressive new skyscraper. You must scale up the measurements to decide how big to build your tall tower.

The model has a height of 30cm and the base is 4cm × 6cm.

Each centimetre on the model stands for a metre in real life, so the real building will be 30m tall and it will have a 4m wide × 6m long base.

1. Can you calculate the measurements for a new tower that is twice as big as this one? What will you need to multiply each measurement by?

30m

4m   6m

_____ m

_____ m   _____ m
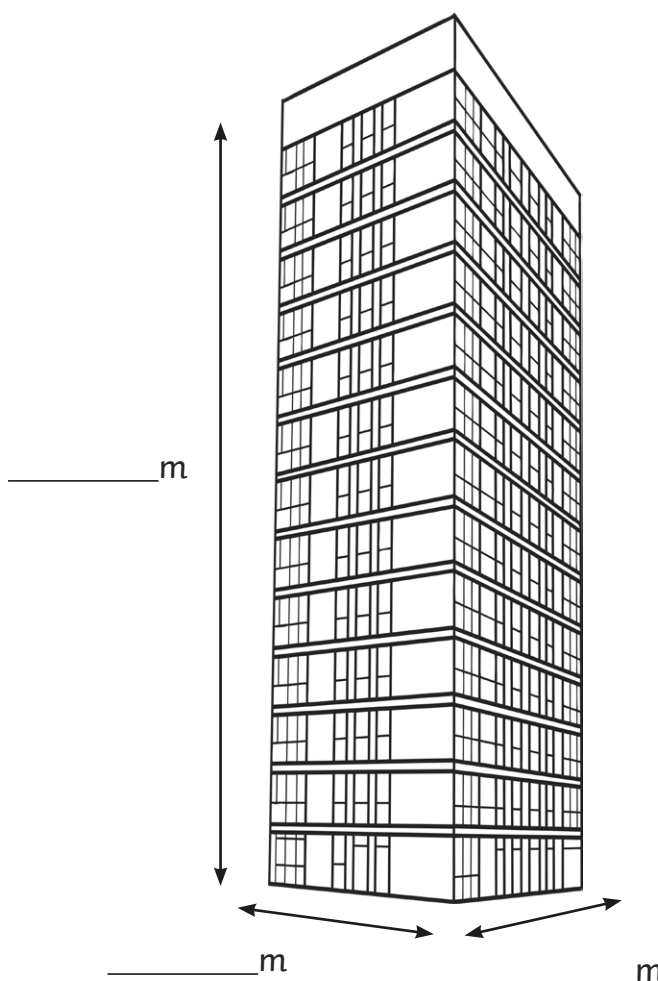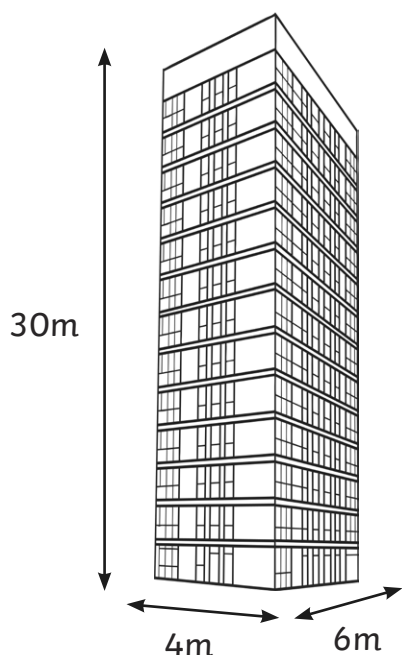
Tall Towers

2. Can you work out the new measurements for the tower if you built it four times bigger?

30m × 4 = _____

4m × 4 = _____

6m × 4 = _____

3. Complete the table showing the new measurements for the tower.

	Height	Width of Base	Length of Base
Tall Tower	30m	4m	6m
Twice as big			
Four times as big			
Ten times as big			
Five times as big			
Six times as big			
Nine times as big			
Eight times as big			

Tall Towers **Answers**

1. **Can you calculate the measurements for a new tower that is twice as big as this one? What will you need to multiply each measurement by?**
   60m high, 8m width of base and 12m length of base.

2. **Can you work out the new measurements of the tower if you built it four times bigger?**
   30m × 4 = **120m**
   4m × 4 = **16m**
   6m × 4 = **24m**

3. **Complete the table showing the new measurements for the tower.**

	Height	Width of Base	Length of Base
Tall Tower	30m	4m	6m
Twice as big	**60m**	**8m**	**12m**
Four times as big	**120m**	**16m**	**24m**
Ten times as big	**300m**	**40m**	**60m**
Five times as big	**150m**	**20m**	**30m**
Six times as big	**180m**	**24m**	**36m**
Nine times as big	**270m**	**36m**	**54m**
Eight times as big	**240m**	**32m**	**48m**

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Tall Towers

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Each centimetre on the model stands for a metre in real life, so the real building will be 30m tall and it will have a 4m wide × 6m long base.

Complete the table showing the new measurements for the tower.

	Height	Width of Base	Length of Base
Tall Tower	30m	4m	6m
Twice as big			
Four times as big			
Ten times as big			
Five times as big			
Six times as big			
Nine times as big			
Eight times as big			

Tall Towers

Name of building	Height rounded to the nearest ten metres
The Shard	310m
The BT Tower	190m
The London Eye	120m
St. Paul's Cathedral	110m

1. If I built a tower a fifth of the height of the BT Tower, how tall would it be? _____

2. If I built a display model of the London Eye which was a tenth of the height of the real building, how tall would it be?_____

3. How tall would a tower half the height of St. Paul's Cathedral be? _____

4. My model of the Shard is 3.1m tall. How many times smaller is it than the real tower? _____

5. How tall would a tower be that was three times the height of the London Eye? _____

Tall Towers **Answers**

Complete the table showing the new measurements for the tower.

	Height	Width of Base	Length of Base
Tall Tower	30m	4m	6m
Twice as big	**60m**	**8m**	**12m**
Four times as big	**120m**	**16m**	**24m**
Ten times as big	**300m**	**40m**	**60m**
Five times as big	**150m**	**20m**	**30m**
Six times as big	**180m**	**24m**	**36m**
Nine times as big	**270m**	**36m**	**54m**
Eight times as big	**240m**	**32m**	**48m**

1. If I built a tower a fifth of the height of the BT Tower, how tall would it be? **38m**

2. If I built a display model of the London Eye which was a tenth of
   the height of the real building, how tall would it be? **12m**

3. How tall would a tower half the height of St. Paul's Cathedral be? **55m**

4. My model of the Shard is 3.1m tall. How many times smaller
   is it than the real tower? **100 times smaller**

5. How tall would a tower be that was three times the height of the London Eye? **360m**

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The model has a height of 30cm and the base is 4cm × 6cm.

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Complete the table showing the new measurements for the tower.

	Height	Width of Base	Length of Base
Tall Tower	30m	4m	6m
Four times as big			
Seven times as big			
Eleven times as big			
Five times as big			
Six times as big			
Nine times as big			
Eight times as big			

Tall Towers

Name of building	Height rounded to the nearest ten metres
The Shard	310m
The BT Tower	190m
The London Eye	120m
St. Paul's Cathedral	110m

1. If I built a tower a quarter of the height of the
   BT Tower, how tall would it be? _____

2. If I built a display model of the London Eye which was a third of the height of
   the real building, how tall would it be?_____

3. How tall would a tower a quarter of the height of St. Paul's Cathedral be? _____

4. My model of the Shard is 3.1m tall. How many times smaller
   is it than the real tower? _____

5. How tall would a tower be that is two and a half times the
   height of the London Eye? _____

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Tall Towers **Answers**

Complete the table showing the new measurements for the tower.

	Height	Width of Base	Length of Base
Tall Tower	30m	4m	6m
Four times as big	**120m**	**16m**	**24m**
Seven times as big	**210m**	**28m**	**42m**
Eleven times as big	**330m**	**44m**	**66m**
Five times as big	**150m**	**20m**	**30m**
Six times as big	**180m**	**24m**	**36m**
Nine times as big	**270m**	**36m**	**54m**
Eight times as big	**240m**	**32m**	**48m**

1. If I built a tower a quarter of the height of the BT Tower, how tall would it be? **47.5m**

2. If I built a display model of the London Eye which was a third of the height of the real building, how tall would it be? **40m**

3. How tall would a tower a quarter of the height of St. Paul's Cathedral be? **27.5m**

4. My model of the Shard is 3.1m tall. How many times smaller is it than the real tower? **100 times smaller**

5. How tall would a tower be that is two and a half times the height of the London Eye? **300m**