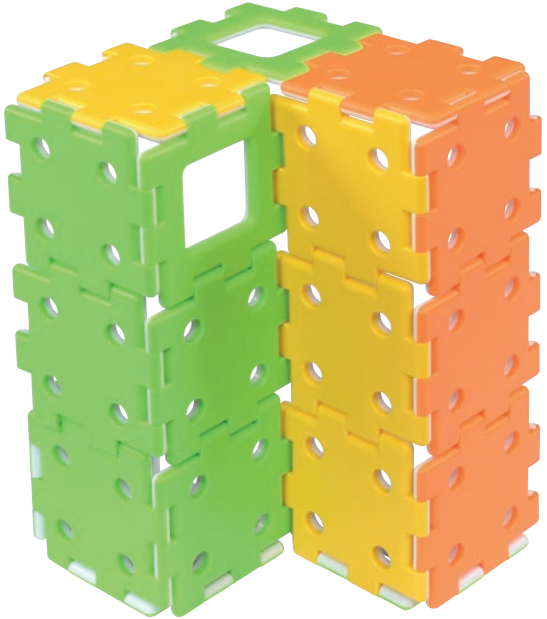
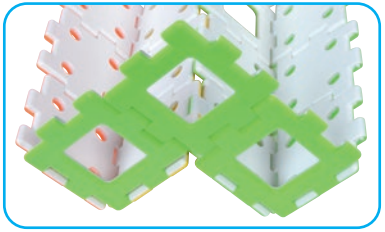
Gear Estimation

MYfirst POLYDRON

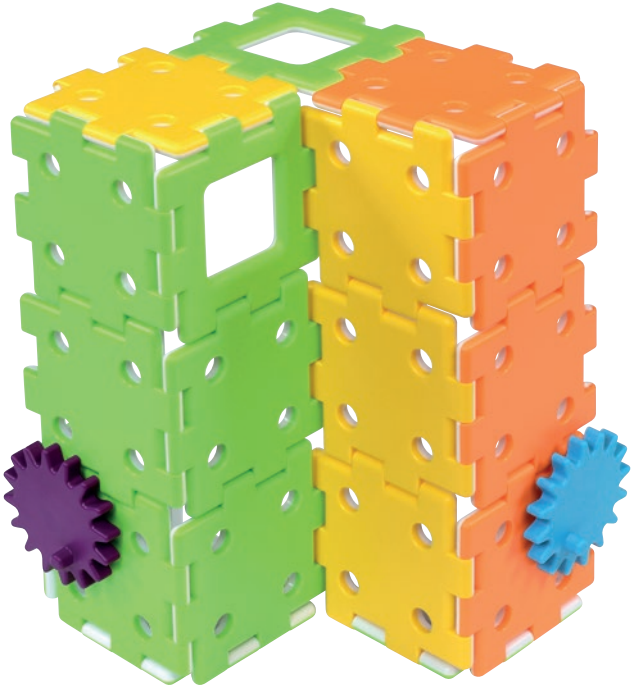
1 Construct this tower.



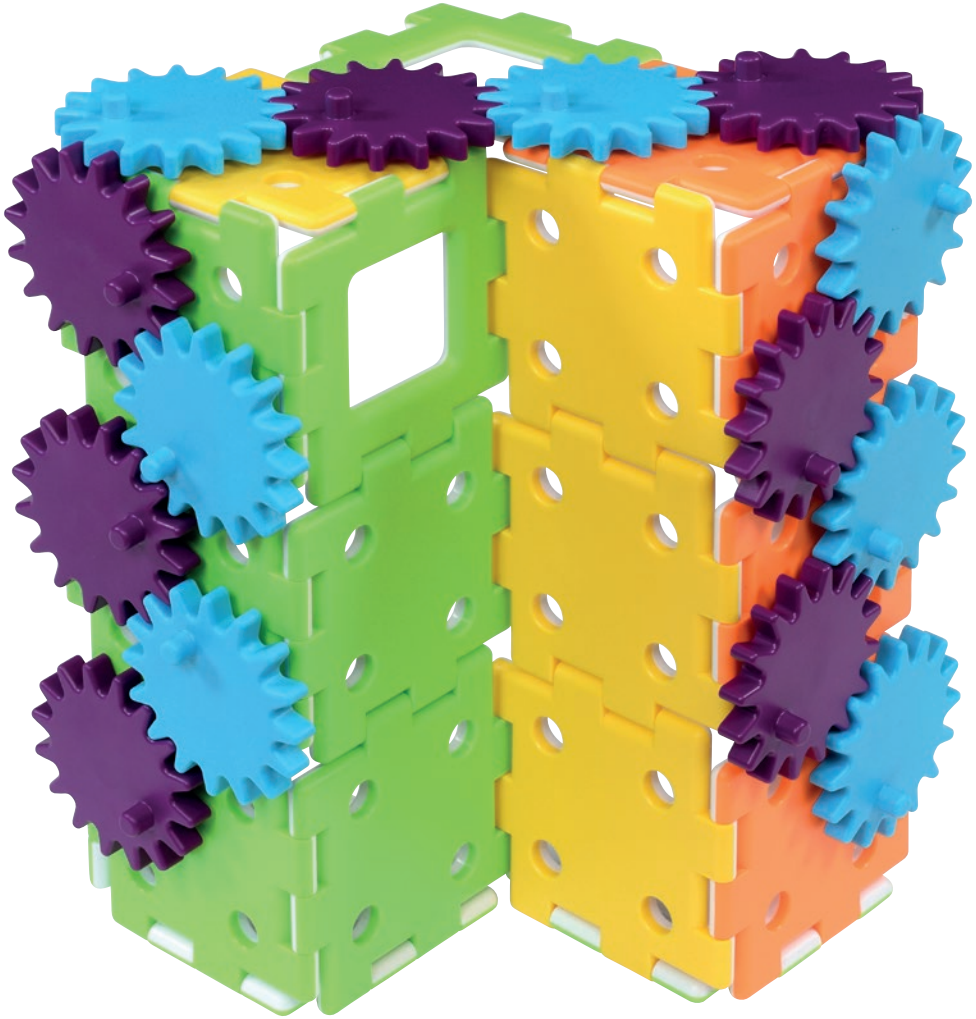
Base Detail



2 Add 2 gears.



Question:
Can you estimate how many more gears are needed to join the 2 gears together?



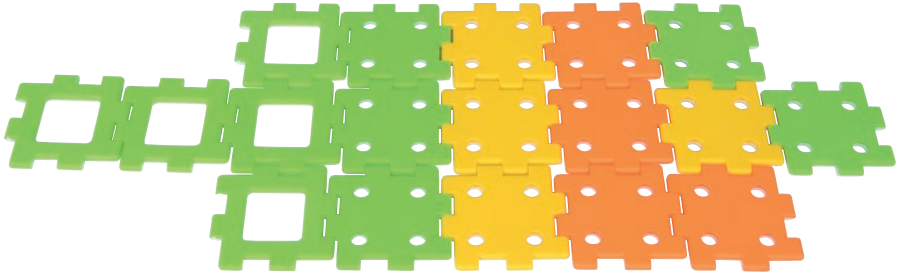
MYfirst POLYDRON

Answer: 12

Winding Tower

MYfirst POLYDRON

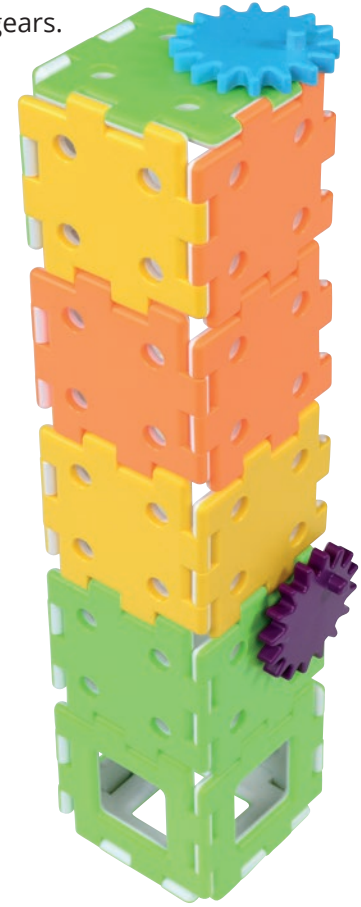
1 Create the net.



2 Make the tower.

Question:
Can you link the 2 gears together by adding 14 gears?

3 Add 2 gears.

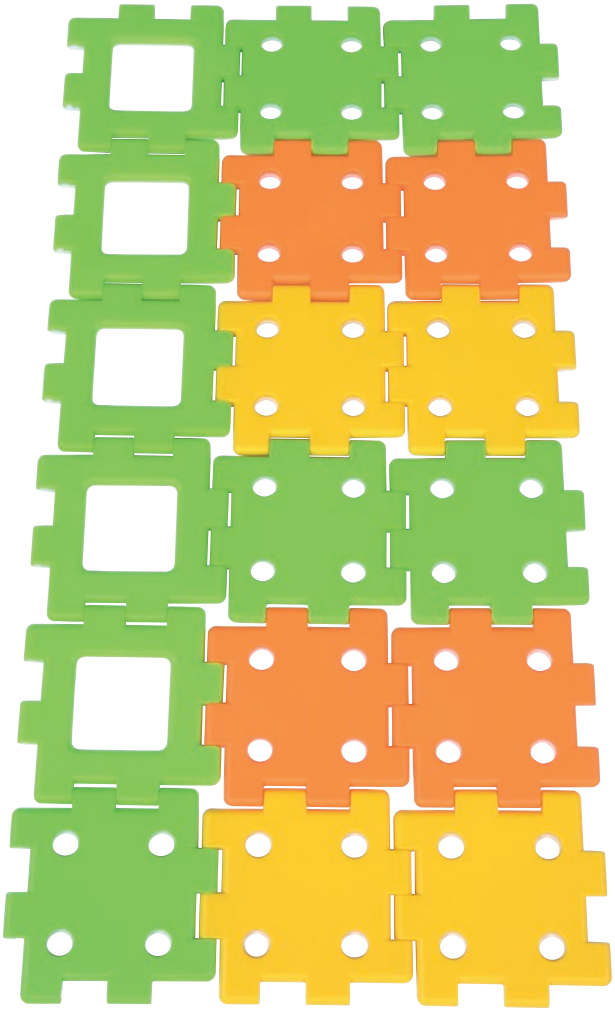


Solution:

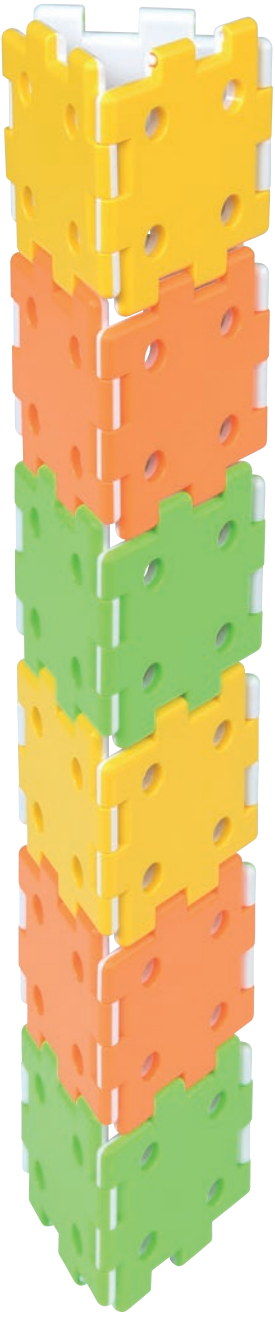
Tower

MYfirst POLYDRON

1 Create the net.



2 Make the tower.



Question:
What is the largest quantity of gears you can add to this model, adding them to only one side of the tower?

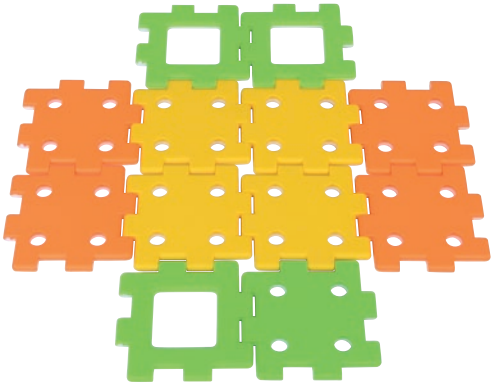
3 Add gears.

Answer:
11 gears.

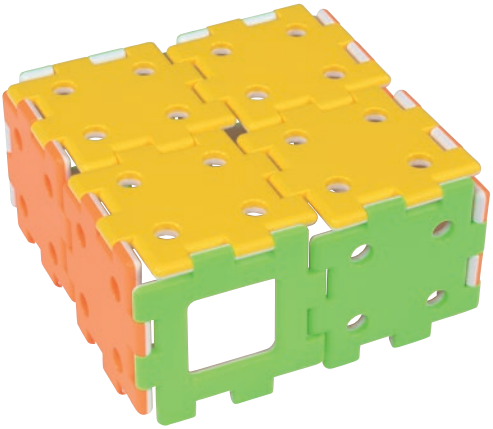
Inverted V Model

MYfirst POLYDRON

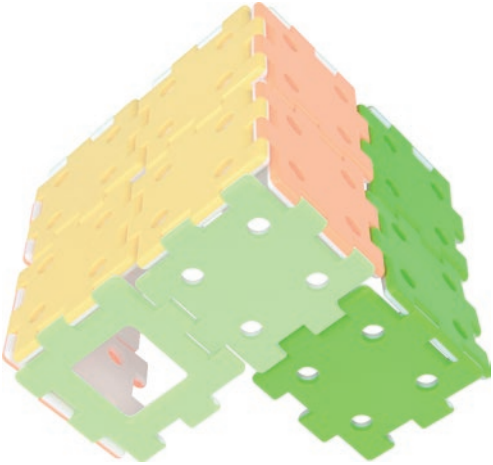
1 Create the net.



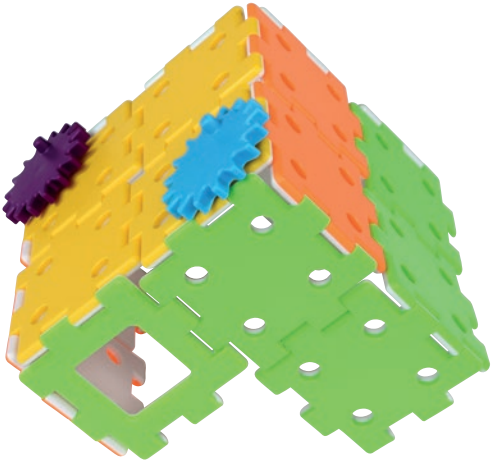
2 Make the model.



3 Add 4 more squares with gear holes.



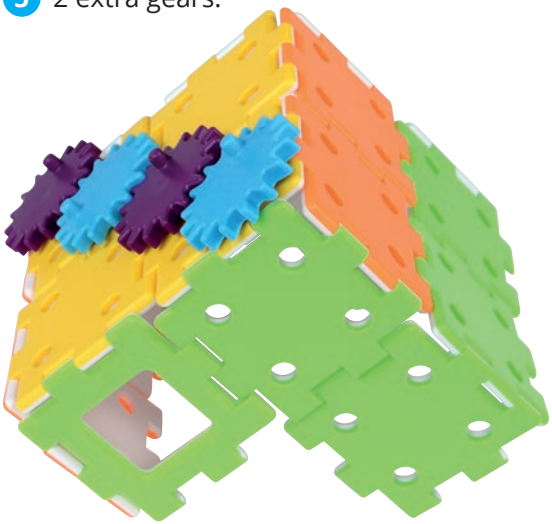
4 Add 2 gears.



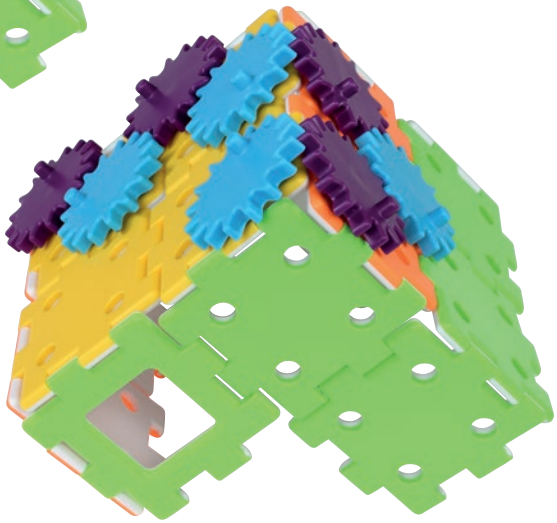
Questions:

Join the 2 gears together by adding extra gears.
How many different ways can this be done?
What are the smallest and largest number of gears that are required?

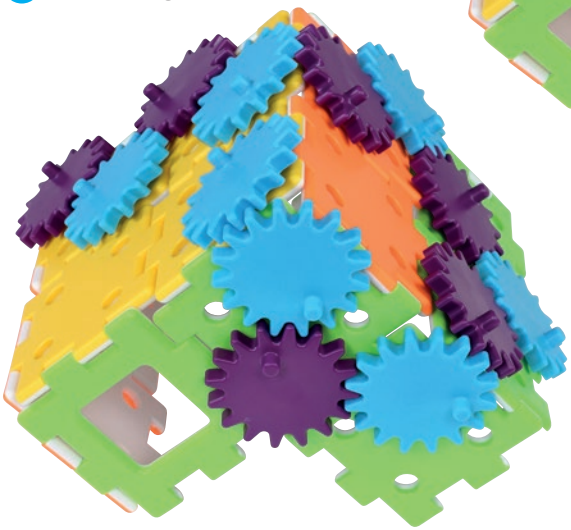
5 2 extra gears.



6 6 extra gears.



7 11 extra gears.

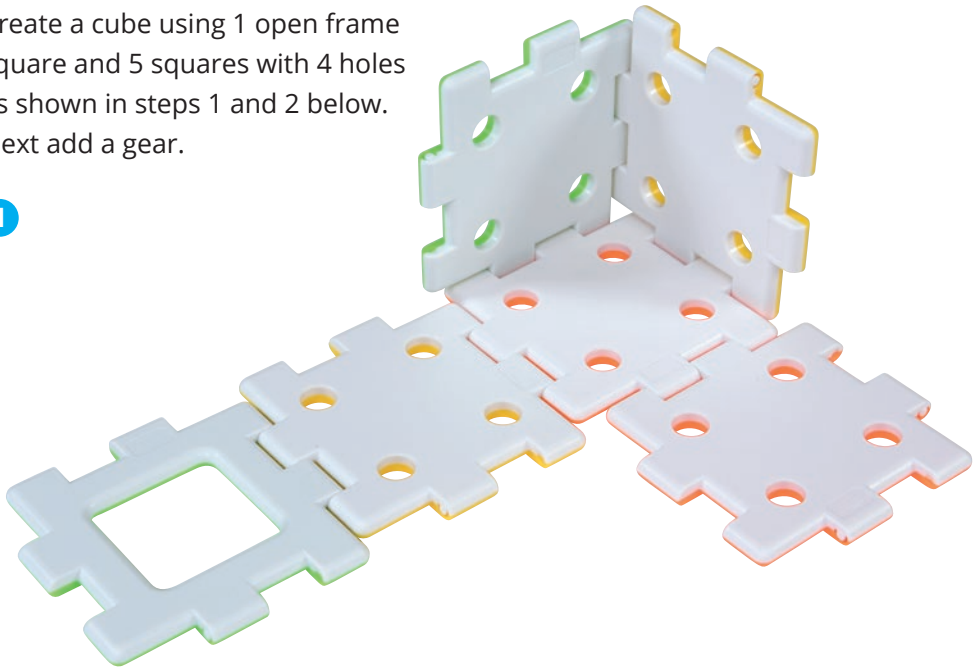


Possible Solutions:
The smallest number of extra gears required is 2 and the largest is 11.

Gear Square

Create a cube using 1 open frame square and 5 squares with 4 holes as shown in steps 1 and 2 below. Next add a gear.

1

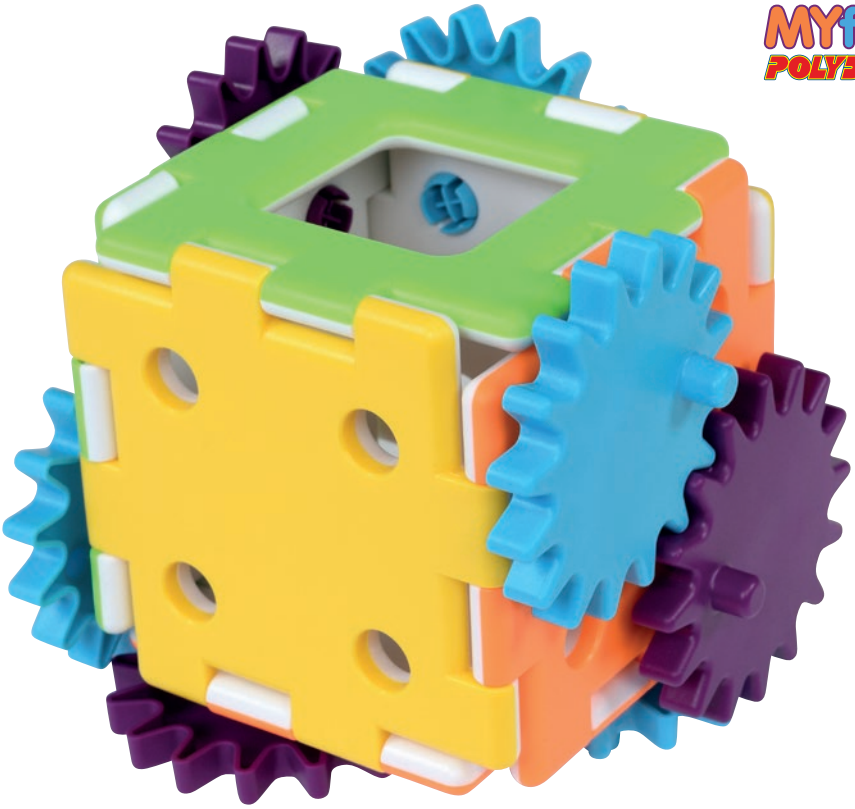


2

3

Questions:

How many gears do you think can fit onto this cube?
Will they all turn in the same direction?



Answer:

In total you can include 8 gears: 4 turn clockwise and 4 turn anticlockwise.