

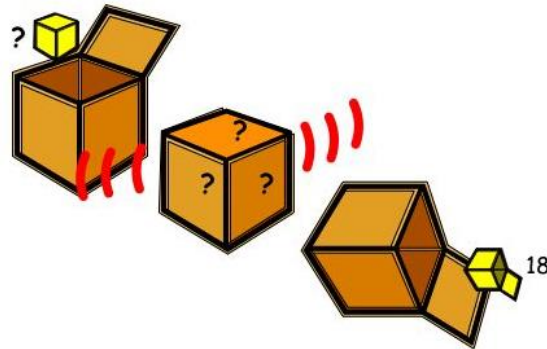
## Maths Challenge Activities Year 4 (Curriculum Link: Time)

(These activities have been collated by your teachers from the nrich website)

### Challenge 1

#### **What Was in the Box?**

A number in a little box is put into a wonderful big box that adds something to the number and then a new number comes out at the end:



The first time this happens, 10 is put into the little box, so what happened in the big box to get the answer in the picture above?

Now three more boxes with new numbers in, go into the wonderful box one at a time. It still does the same as before.



So, what were the three new numbers that went in? Remember that the wonderful big box did the same for all four numbers that went in.

Imagine four new boxes now (with new numbers in) and the wonderful box does a new and different add or take away this time. For one of these boxes the number 10 was put in. The numbers that come out are these:



What could have happened? How did you work these out?  
Discuss with others and see if there were different ways that you found the answers.

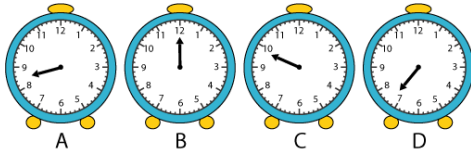
### Hints

Remember, each of the four numbers that goes in has the SAME number added by the big box.

## Challenge 2

### Two Clocks

Sam and Julie are friends. Both of them have rather odd clocks at home. In Sam's bedroom there is an old alarm clock which his Dad had thrown out because it had lost its minute hand. Although it has only its small hand, Sam can still tell the time using it. He can tell the hour, such as midday. He can tell when it is time to get up, time to go to school and time to turn his light out at night.



Which clock is showing it is midday?  
At what time does Sam get up?  
At what time does Sam go to school?  
At what time is Sam supposed to turn out his light?

In Julie's hall there is a very old clock which lost its hour hand a long time ago.



School finishes at half past three and it takes Julie at least half an hour to get home. Sometimes she goes to the shop on the way, and sometimes she leaves school a bit later. When she first gets home Julie always looks at the clock in the hall to see what time it is.

One week these were the times she saw:



On which day was it raining so she hurried straight home?  
On which day did she go to the shop to buy some sweets on the way home?  
On which day did she stay at school to practise in the band?  
On which day did she play with Sam for about half an hour before setting off for home?  
On which day did her teacher keep the class in for five minutes?

### Hints

Approximately what time do you think each clock is showing?  
Can you order these times together to fit in with Sam's day?  
Thinking about Julie's week, where might the minute hand of the clock be if she hurries home from school and it takes about half an hour?  
Which three clocks show minute hands five minutes apart? Might that help you to decide which days they were?

### **Challenge 3**

#### **Wonky Watches**

Mandeep's watch loses two minutes every hour.

Adam's watch gains one minute every hour.

They both set their watches from the radio at 6:00 a.m. then start their journeys to the airport. When they arrive (at the same time) their watches are 10 minutes apart.



At what time (the real time) did they arrive at the airport?

#### **Hints**

What time will each watch say after an hour? Two hours ...?

How far apart will the times on the two watches be after an hour? Two hours ...?

### **Challenge 4**

#### **Half Time**



When Spain played Belgium in the preliminary round of the men's hockey competition in the 2008 Olympics, the final score was 4–2.

4 2

What could the half time score have been?

Can you find all the possible half time scores?

How will you make sure you don't miss any out?

In the final of the men's hockey in the 2000 Olympics, the Netherlands played Korea. The final score was a draw; 3–3 and they had to take penalties.

3 3

Can you find all the possible half time scores for this match?

## **Hints**

What could the score have been if Spain hadn't scored any goals by half time?  
What could the score have been if Spain had scored one goal by half time ...?

## **Challenge 5**

### **5 on the Clock**



On a digital clock showing 24-hour time, over a whole day, how many times does a 5 appear?

Is it the same number for a 12-hour clock over a whole day?

## **Hints**

When does 5 appear in the minutes display?  
When does 5 appear in the hours display?  
How will you know that you have got all the different times?

## **Maths Challenge Solutions for Parents Year 4**

These links will take you to the possible challenge solutions as outlined on the enrich website.

**Challenge 1:** <https://nrich.maths.org/7819/solution>

**Challenge 2:** <https://nrich.maths.org/4806/solution>

**Challenge 3:** <https://nrich.maths.org/1002/solution>

**Challenge 4:** <https://nrich.maths.org/7408/solution>

**Challenge 5:** <https://nrich.maths.org/1981/solution>