

## Have a go:

### Bebras – Year 8 Question

Betaro Beaver has discovered five new magic potions:

- one makes ears longer
- another makes teeth longer
- another makes whiskers curly
- another turns the nose white
- the last one turns eyes white.

Betaro put each magic potion into a separate beaker. He put pure water into another beaker, so there are six beakers in total. The beakers are labeled A to F. The problem is, he forgot to record which beaker contains which magic potion!

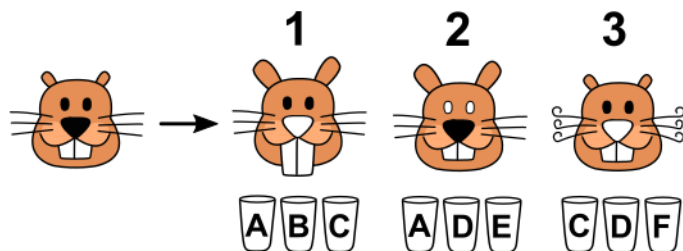


To find out which potion is in each beaker, Betaro set up the following experiments:

Experiment 1: A beaver drinks from beakers A, B and C together - the effects are shown in Figure 1.

Experiment 2: A beaver drinks from beakers A, D and E together - the effects are shown in Figure 2.

Experiment 3: A beaver drinks from beakers C, D and F together - the effects are shown in Figure 3.



**Question:**

Which beaker contains pure water?

**Source:** *Bebras.uk*

### National Cipher Challenge:

An example of a challenge

You are a teacher and have caught students passing notes in class. The students recently took part in the National Cipher Challenge! You know a bit about ciphers, and suspect they might be using a simple cipher. Can you decode the message:

*Hint: You think that the type of cipher used might be linked to a popular salad!!*

Phhw brx dw wkh jdwh diwhu vfkrrro

**Source:** *Miss Broderick*

### CyberFirst Competition

An example of a challenge

Where in the world is Miss Broderick! Miss Broderick has gone on her holidays and has told her students that the flag of where she is going is: 5EC838 FFFFFFF F27F00 Any idea where she is?

**Source:** *Miss Broderick*

# Answers:

## Bebras – Year 8 Question

Beaker D

## National Cipher Challenge:

They have used a simple cipher called the “Ceaser Cipher”. By entering their message onto an online conversion tool you know it said:

**“Meet you at the gate after school”**

## CyberFirst Competition

Miss Broderick is off to Ireland! The colours she gave were in Hexadecimal and this is what the colours were.

