

## Year 5 & 6 Science: Home Learning Week 4

Hello Year 5 & 6, I hope you're well and enjoying trying out these science activities. We're following the BBC Bitesize lessons from now on and this week our focus is on mixing, dissolving and separating substances. You should try to complete tasks 1, 2 & 3 if you can. The rest, including the practical activity, are optional.

I'll try to include a practical activity related to the Bitesize lesson each week but remember to get permission from an adult before doing anything and clean up after yourself when you're finished! There are also some "live lessons" this week from the Field Studies Council, they're totally optional but look like they'll be fun and interesting if you want to have a go!

Stay at home & stay safe

Miss Johnston ☺

| Task | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Watch the BBC Bitesize lesson on Wednesday. Here's a link to the daily lessons page:<br><a href="https://www.bbc.co.uk/bitesize/tags/zncsscw/year-6-lessons/1">https://www.bbc.co.uk/bitesize/tags/zncsscw/year-6-lessons/1</a><br>If you have trouble watching online, you can access the Bitesize lessons via the red button on your TV remote. Just switch the TV to BBC1, press the red button and the Bitesize options should come up... It can take a minute or two to load so be patient!                                                                                                             |
| 2    | Visit BBC Bitesize, read the information and complete the gap fill activity:<br><a href="https://www.bbc.co.uk/bitesize/topics/zcvv4wx/articles/zpbdpbk">https://www.bbc.co.uk/bitesize/topics/zcvv4wx/articles/zpbdpbk</a><br>Next, watch this video clip: <a href="https://www.bbc.co.uk/bitesize/clips/zx7w2hv">https://www.bbc.co.uk/bitesize/clips/zx7w2hv</a>                                                                                                                                                                                                                                          |
| 3    | What does the word "soluble" mean? Use a dictionary to find out if you're not sure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4    | Can you think of other every day examples of soluble substances? There are lots of household examples, see how many you can list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5    | Write a script for, act out (or, if possible) record a video clip, aimed at children in year 2, explaining why substances such as sugar or salt seem to "disappear" when we mix them with water. Do they actually disappear?                                                                                                                                                                                                                                                                                                                                                                                 |
| 6    | <b>OPTIONAL PRACTICAL ACTIVITY: Separating felt pen ink colours</b><br>If you wish, you can carry out the practical activity on the next page. <u>Please ask permission from an adult before you do this, do not be tempted to pop out to the shop to buy materials!</u><br>After you have done the practical activity, answer the following questions:<br>a) Which ink colours did you test?<br>b) Which were the most soluble? (remember these are the colours that travelled furthest) c)<br>What are the three primary colours?<br>d) Did any of the inks contain colours that you didn't expect to see? |

## **Practical details**

### **Separating Felt Pen Ink Colours**

#### **About this activity**

Substances that dissolve are described as being soluble. Sugar and salt are examples of substances which are soluble in water.

The ink in water based felt tip pens consists of different colours called pigments. In “washable” pens, all of the pigments are soluble in water but each pigment behaves differently. Some pigments dissolve more easily than others and we can use this to make some interesting patterns and effects.

#### **For parents: Why do this?**

This practical describes how to separate mixtures of liquids in order to investigate colour, linking to our Year 5 topic – Properties and Changes of Materials.

#### **Safety note**

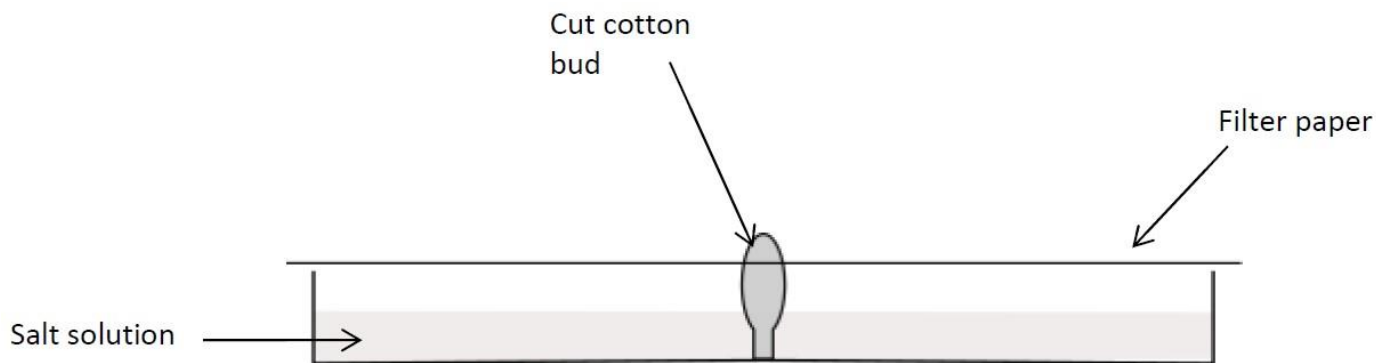
You might wish to extend the investigation by testing solubility in vinegar or a sodium bicarbonate solution. Do not use stronger acids or alkalis found in household cleaning products or alcohol based solvents.

#### **Equipment & materials**

- |                                                                                                                   |                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 10cm saucer or shallow dish                                                              | <input type="checkbox"/> 6 different colour water-based felt tip pens (browns and purples are particularly good) |
| <input type="checkbox"/> Filter paper or kitchen roll (cut to an 11cm circle, or diameter larger than the saucer) | <input type="checkbox"/> Cotton bud tips (cut the ends off where the cotton wool meets the stick)                |
| <input type="checkbox"/> Pencils                                                                                  |                                                                                                                  |
| <input type="checkbox"/> Salt solution (about 1 tsp per 250ml)                                                    |                                                                                                                  |

#### **Method**

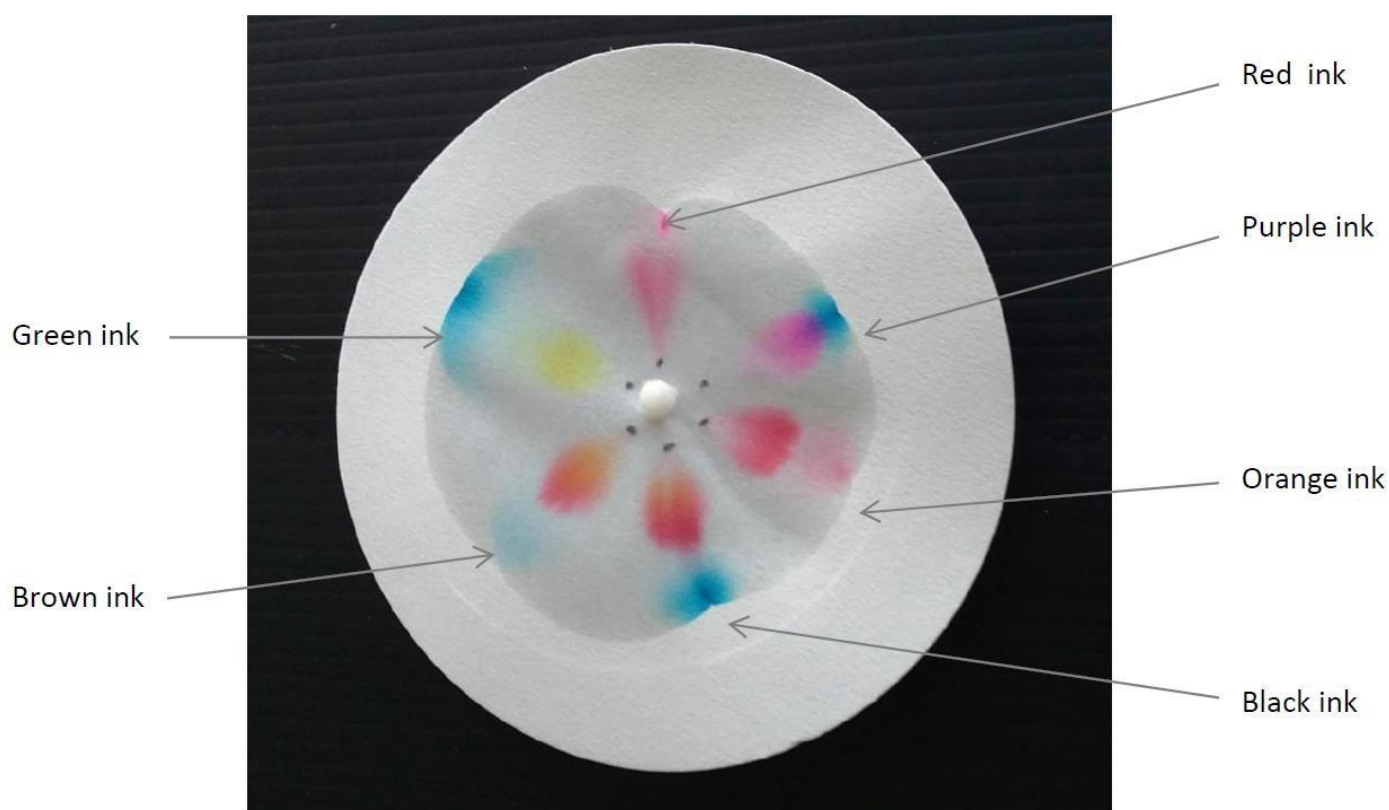
1. Lay the paper over the stencil (see page 3). Using a pencil gently mark the 6 dots and the central dot.
2. Carefully make a small hole through the centre dot with the pencil.
3. Mark each of the 6 other dots with a different felt tip pen, ensuring the dots remain very small. Do not mark the centre dot.
4. Using a pencil, write the colour of each dot on the edge of the filter paper.
5. Push the cotton bud tip through the centre hole, leaving about half the cotton wool sticking up. The filter paper should sit just on top of the dish, adjust the cotton bud if necessary.
6. Add the salt solution to about half way up the dish. Gently place the filter paper and cotton bud on top of the dish ensuring the cotton wool is in the liquid. Then watch what happens. 7. Full separation should occur within 10 minutes



### **Expected observations and results**

Water based inks are soluble (they dissolve in water) and separate into the primary colours that they were mixed from. Some colours are more soluble than others and so they travel further away from the original dot.

Your results should look something like this:



### **Questions to answer**

- Which colour inks did you test?
- Which were the most soluble? (remember these are the colours that travelled furthest)
- What are the three primary colours?
- Did any of the inks contain colours that you didn't expect to see?

### **Possible further activities**

Different solutions can be used to see if the results vary. You could try:

- Different concentrations of salt solution
- Plain tap water
- Clear vinegar (acid)
- Sodium bicarbonate solution (alkali)
- Investigating different types of paper for separation

