To change hair colour permanently, salons use hydrogen peroxide mixed with bleach, liquid tints or cream-based tints. It is vital that the correct strength peroxide is used in order to achieve the correct colour result.

Hydrogen peroxide comes in different strengths. The strength can be described in two ways:

**Percentage strength (%)**
This tells you how much pure hydrogen peroxide is in the solution.

**Examples**
- In every 100 ml of a 3% solution, 3% (3 ml) will be pure hydrogen peroxide and 97 ml will be water.
- In every 100 ml of a 6% solution, 6% (6 ml) will be pure hydrogen peroxide and 94 ml will be water.

**Volume strength (vol.)**
This tells you how much oxygen is released from 1 ml of hydrogen peroxide solution.

**Examples**
- 1 ml of 10 vol. gives 10 ml oxygen.
- 1 ml of 20 vol. gives 20 ml oxygen.

The stronger the solution:
- the more pure hydrogen peroxide it contains
- the more oxygen can be released in the hair shaft.

**Hydrogen peroxide** releases oxygen when applied to the hair.
The oxygen reacts with natural hair pigment, making it lighter.
The oxygen joins onto the small hair-colour molecules, which join together to form large coloured molecules that are too big to leave the hair shaft.

Try this
- 3% is the same strength as 10 vol.
- 6% is the same strength as 20 vol.
- ___% is the same strength as 30 vol.
- 12% is the same strength as ___ vol.
Hydrogen peroxide strengths

Task 1

1. Put the Heads Above hydrogen peroxide solutions in order of strength, starting with the weakest.
   
   2. Put the Fixations hydrogen peroxide solutions in order of strength, starting with the weakest.

3. Match the hydrogen peroxide solutions that are the same strength.
   
   a is the same strength as ___.
   
   b is the same strength as ___.
   
   c is the same strength as ___.
   
   d is the same strength as ___.

Task 2

Complete the following sentences.

1. a 6% is ___ times stronger than 3%.
   
   b 9% is ___ times stronger than 3%.
   
   c 12% is ___ times stronger than 3%.
   
   d 12% is ___ times stronger than 6%.

2. a 20 vol. is ___ times stronger than 10 vol.
   
   b 30 vol. is ___ times stronger than 10 vol.
   
   c 40 vol. is ___ times stronger than 10 vol.
   
   d 40 vol. is ___ times stronger than 20 vol.

3. a 6% is ___ times stronger than 10 vol.
   
   b 9% is ___ times stronger than 10 vol.
   
   c 12% is ___ times stronger than 10 vol.