

Name:..... Date:.....

Nanochemistry

In this activity you will look at pictures of atoms. See how scientists can move atoms around to make pictures. Look at the pictures of atoms and read their descriptions. Make as many observations as you can and answer the questions about each picture.

Seeing atoms

Picture 1

1. What are the symbols, atomic numbers and relative atomic mass values of the two atoms in the picture?
2. Which atom is the top of the zit? Which is the 'body' of the zit?
3. Give the names of atoms that would also make a zit if treated like this.
4. What colour would the atoms be in real life?

Picture 2

1. Write down the electron configuration for copper.
2. How might the electron configuration for the atoms creating the dents be different from copper?
3. What has caused the 'waves' in the picture?
4. What does this tell you about how electrons behave?

Picture 3

1. How many iron atoms have been used in the picture?
2. How must the picture have been created?
3. One iron atom has a diameter of 248 pm. What is the distance (in nm) across the top of the upper character?
4. In what way is the title 'original child' appropriate for a picture of atoms?

Picture 4

1. What shape does each iron atom have?
2. Why don't the copper atoms show up as the same shape?
3. What might cause the pattern in the centre?
4. Why is it useful to be able to move atoms individually?