



Hinchingsbrooke School Science Department

KS3 Homework Task

Particles and Materials HW3 – Arsenic in India

Date set:

Date Due in:

On the following page is information related to the task. You may need to do additional research to achieve the maximum level possible.

- Answer all questions, if you use PowerPoint please print off and stick in your book
- Fill in your details below

Name:	Form:
Teacher:	Science Set:

Feedback from teacher:

Student comment:

Arsenic in India

People in Bihar, a state in north-east India, are very worried about arsenic in the wells they use for drinking water. A government survey has shown that in 12 districts of Bihar, the level of arsenic in the water is so high that it is a threat to life. The World Health Organization says that levels of arsenic above 10 parts per billion (ppb) are a health hazard, and health authorities in India say that levels of arsenic of 50 ppb are acceptable. The average level of arsenic in the drinking water in the affected districts of Bihar is 500 ppb.

Although scientists believe that people need very, very small amounts of arsenic, it is a bio-accumulative element, which means that if people take in too much of it, it gradually builds up in the body, until it reaches dangerous levels and causes serious illnesses such as gangrene and cancer of the intestines, liver, bladder and kidney, serious skin sores and rashes, and weakening of the bones. In India, the water from the wells is used for watering crops, as well as for drinking and cooking, so people are getting arsenic from food and from the drinking water. Research has shown that some plants absorb arsenic more than others, so scientists are trying to find out which crops grown locally are safest to eat. Bihar's Public Health and Education Department is marking wells with different colours to indicate those that are safe and those that are unsafe.

Scientists are still not sure how the arsenic has leached into although they know that arsenic exists naturally in many area. The amount of arsenic in the drinking water has recent years, which makes some scientists think that falling have exposed layers of rock containing arsenic. The oxidised in the air to form arsenite and arsenate that are soluble in water.



Arsenic rock (iStockphoto)

the water rocks in the increased in water levels arsenic is compounds

QUESTIONS

Look up *arsenic* in the periodic table. Write down its chemical symbol. Is it a metal, a non-metal or a metalloid (semi-metal)?

What do you think '50 parts per billion' means for arsenic?

Describe in your own words what a 'bio-accumulative' chemical is.

What is the difference between arsenic (an element), and arsenite or arsenate (compounds)?

Explain what 'the arsenic is oxidised' means.

Help is at hand

In the past, people from the affected regions have been told, 'Don't drink the water from the wells'. Discuss what advice you might give them that might be more helpful.