

## Tutorial 5: Cause and Consequence

### Activity one

#### **Self evaluation – entry test**

##### ■ Fill in the gaps.

Example:

**Th** ..... chlorophyll, CO<sub>2</sub> is **transformed into** oxygen. (because of)

→ **Thanks to** chlorophyll, CO<sub>2</sub> is transformed into oxygen.

1. A superficial interpretation of statistics may **le** ..... to erroneous conclusions. (*have as a consequence*)
2. The airports are being enlarged, **th** ..... we can expect an increase in the tourist industry. (*consequently*)
3. **Du** ..... rising temperatures, the average thickness of polar ice is only half as much as it was 10 years ago. (*because of*)
4. New data supplied by the human genome project is going to **sp** ..... a revolution in medical research. (*cause, start*)
5. In statistics, when the number of possible **ou** ..... is 0, it indicates that an event will never occur. (*consequences, results*)
6. The accident **re** ..... two deaths from multiple organ failure. (*had as a consequence*)
7. Lake Geneva is becoming severely deoxygenated during the summer months **ow** ..... the hydroelectric dams built in the upper Rhone. (*because of*)
8. The CO<sub>2</sub> produced in respiration is a **by-** ..... of metabolism. (*collateral, secondary result*)
9. In surgical operations, serum rather than plasma is often used **si** ..... it is more readily available. (*because*)
10. New York City has spent \$10 million on mosquito control, **th** ..... reducing viral health risks to the population. (*by doing this, thus*)

### Activity two:

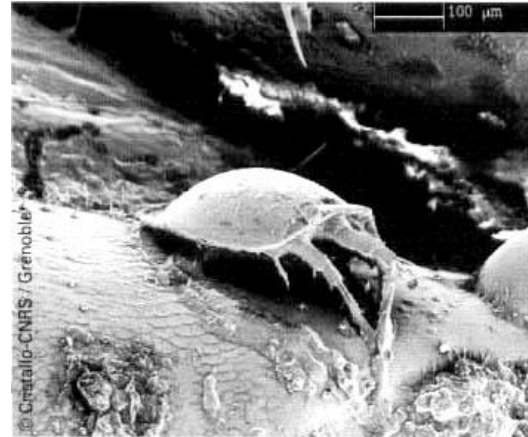
#### THE SCANNING ELECTRON MICROSCOPE (SEM)

Read the description and find synonyms for the words in **bold**.

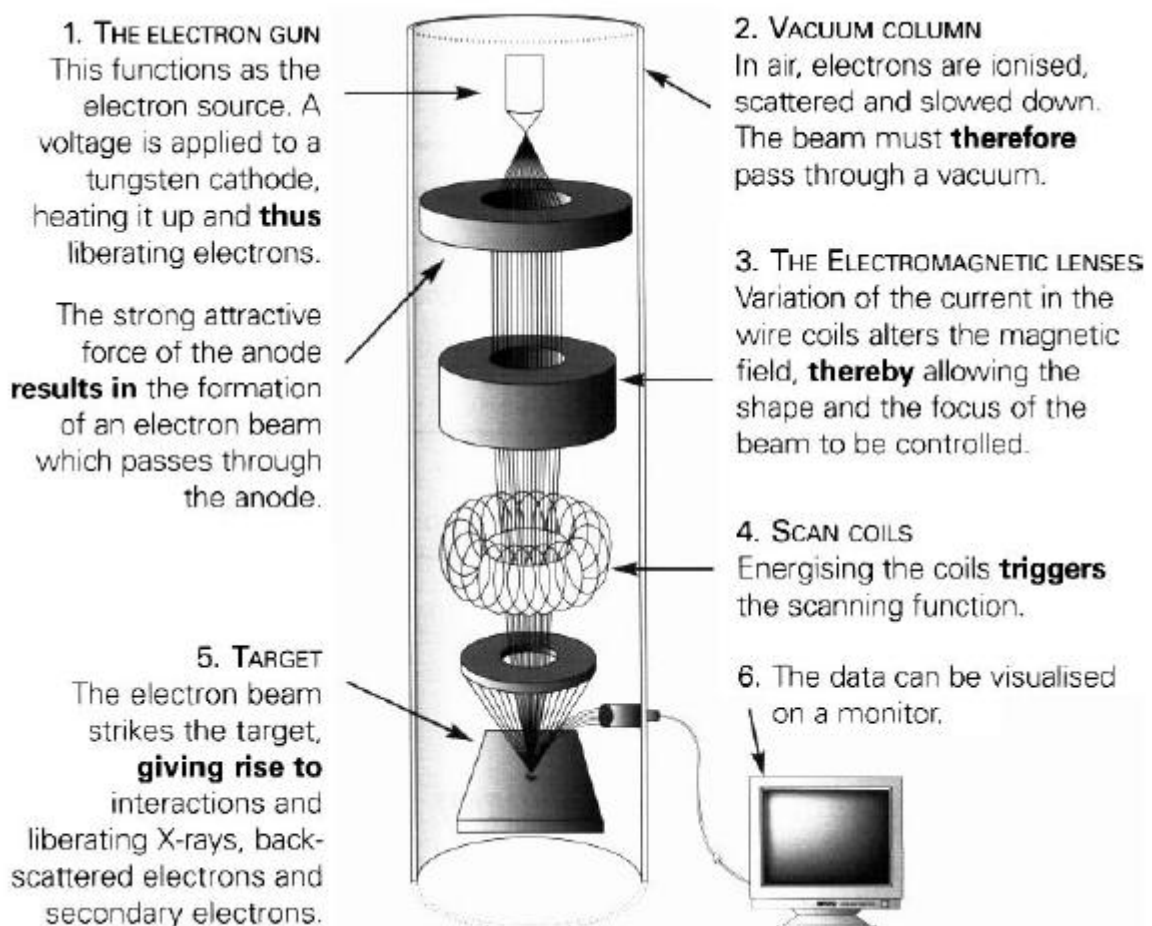
**As** the wavelength of visible light is approximately 4,000 angstrom, this means that there is a lower limit to the resolution of optical microscopes. To obtain higher resolution, shorter wavelengths are required. Electrons used in SEMs have wavelengths of 0.5 angstrom, **hence** it is possible to visualise molecules and even atoms. Samples cannot be scanned unless they are dry (to prevent vaporisation) and electrically conductive. **As a result**, organic materials must be coated with a metallic layer, such as gold.

**Thanks to** the scanning pattern, a 3-dimensional image of the surface structure can be obtained.

The suggestion that electrons might be regarded as a form of wave motion and used for microscopy **stems from** the work of Louis de Broglie (1924), as an **outcome** of his research into quantum mechanics. The first SEM was built in 1933.



*Dust mite (Acari)*



**Activity Three:**

A. Match the causes and consequences and insert the appropriate words:

LEAD TO ▪ HENCE ▪ COMES FROM ▪ OWING TO ▪ ARISES ▪ SINCE ▪ WAS BROUGHT ABOUT ▪ THANKS TO.

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. The word "alcohol" .....</li> <li>2. Genetic variation .....</li> <li>3. Extra galactic stars are moving away from the Earth .....</li> <li>4. Their numbers will increase .....</li> <li>5. Millions of lives have been saved .....</li> <li>6. The population explosion will .....</li> <li>7. He will certainly be travelling abroad .....</li> <li>8. The formation of Gondwanaland .....</li> </ol> | <ol style="list-style-type: none"> <li>a. the discovery of penicillin.</li> <li>b. the Arabic "al-kuhl", a fine powder used as an eye cosmetic.</li> <li>c. by the collision of the Earth's tectonic plates.</li> <li>d. he now works for a petroleum company.</li> <li>e. there is a red shift in the light. (the Doppler effect)</li> <li>f. the fact that predators have been eliminated.</li> <li>g. famine and epidemics throughout the world.</li> <li>h. when mutations occur in genes and chromosomes.</li> </ol> |
|--|---|

**Activity Four:**

■ Prefixes like "over- ▪ under- ▪ un-" can be used to modify the meanings of verbs. Here, they express the notions of "too much", "not enough", "not at all".  
*Example: Natural resources may be **over**exploited, **under**exploited or **un**exploited.*

1. The photograph was almost white. It had been ..... **exposed**.
2. Low farm prices are a direct consequence of ..... **production**.
3. Cancer is characterised by ..... **checked** cell growth, leading to tumours that damage the surrounding tissue.
4. If the hypothalamus is damaged, the rat will ..... **eat** and become obese.
5. Some educationalists claim that unless exceptionally intelligent children are put in special classes, they will ..... **achieve**.
6. Liberal economists maintain that there are too many ..... **employed** workers in the public sector.
7. Leonardo da Vinci has a reputation as artist and scientist ..... **matched** by any other man.
8. Human beings have a tendency to ..... **estimate** to what extent their ideas are their own.
9. A direct cause of the Bhopal catastrophe in India was that the operating procedures were sub-standard and the plant was chronically ..... **staffed**.