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The above authors were all members of the team who worked together with the Editors on the Series. The Editors would like to thank them, together with Dick and Margaret Knight, for certain suggestions incorporated into *General Science*.

# NUCLEUS

ENGLISH FOR SCIENCE AND TECHNOLOGY

## GENERAL SCIENCE

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Longman

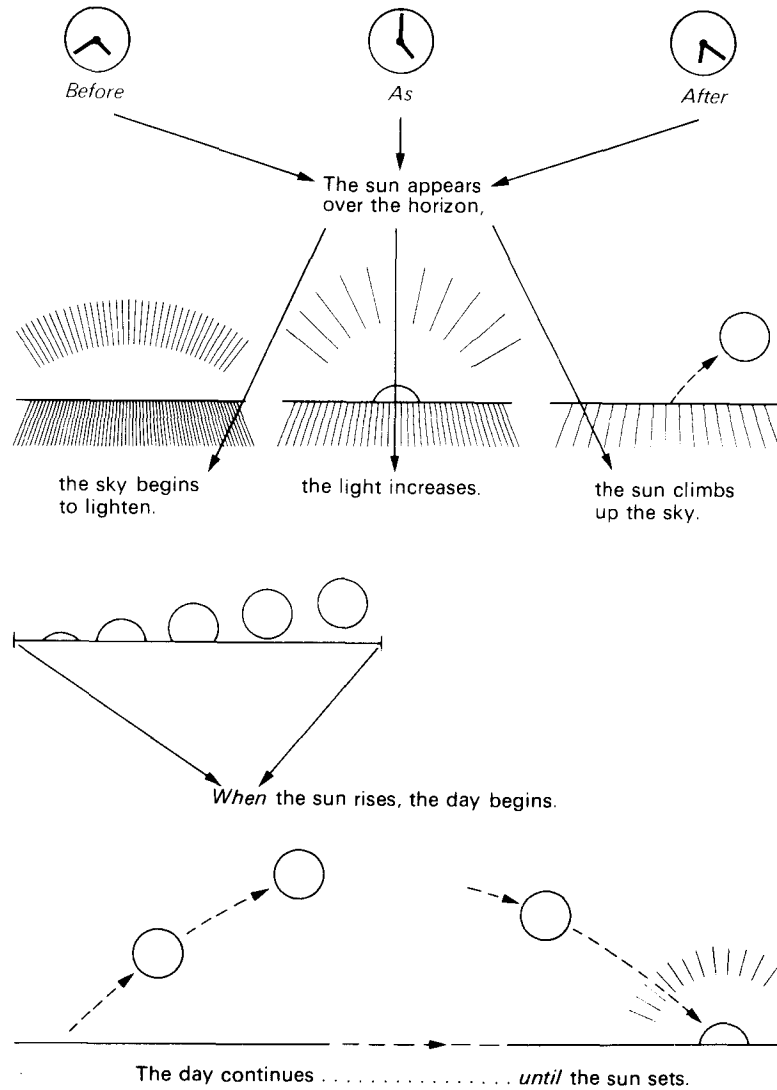
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# Unit 6 Process 2 Actions in Sequence

## Section 1 Preceding, simultaneous and following events

1. Look and read:










Each sentence contains two events, X and Y. Read out the sentence which means:

- a) X occurs at the same time as Y (simultaneously with Y).
- b) X occurs at approximately the same time as, or soon after, Y.
- c) X precedes Y.
- d) X follows Y.
- e) Y is at the end of X.

Now complete these sentences:

- f) \_\_\_\_\_ the sun rises, the air temperature rises.
- g) \_\_\_\_\_ the sun reaches the highest point in the sky, it begins to descend.
- h) \_\_\_\_\_ the sun descends, the air temperature falls.
- i) \_\_\_\_\_ the sun sets, it approaches the horizon.
- j) \_\_\_\_\_ the sun sets, the sky becomes completely dark.
- k) \_\_\_\_\_ the sun sets, the day ends.
- l) The night begins \_\_\_\_\_ the sun sets.
- m) The night continues \_\_\_\_\_ the sun rises.

2. Number these events in the order in which they occur when water is heated. Give simultaneous actions the same number.

	a) The water becomes hot.
	b) The gas is lit.
	c) Bubbles appear.
	d) Steam appears.
	e) The gas is turned on.
	f) Bubbles burst.
	g) Bubbles rise to the surface.
Liquid → Gas	h) The water evaporates.

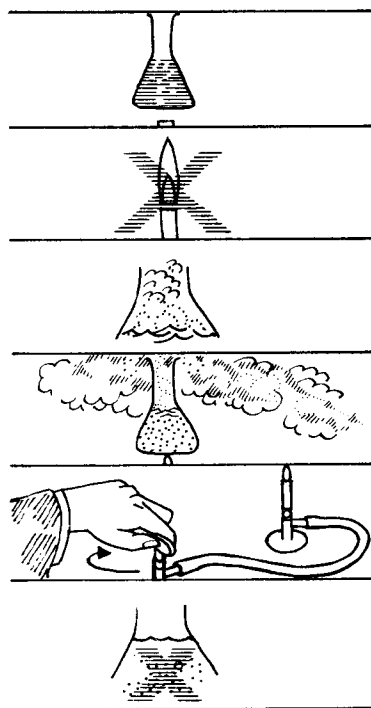
Now look at the two points in this example:

*As soon as the gas is turned on, it is lit.*  
(X follows Y immediately)

Complete these sentences:

- i) As the water evaporates, . . . .
- j) As soon as the bubbles burst, . . . .
- k) When the bubbles rise to the surface, . . . .
- l) As soon as the gas is turned on, . . . .
- m) Before the gas is lit, . . . .
- n) After the water becomes hot, . . . .
- o) As soon as the bubbles appear, . . . .

3. Number these events in the order in which they occur. Give simultaneous actions the same number.



- a) The water ceases boiling.
- b) The flame is extinguished.
- c) The water starts to boil.
- d) The water continues boiling.
- e) The gas is turned off.
- f) The bubbles disappear.

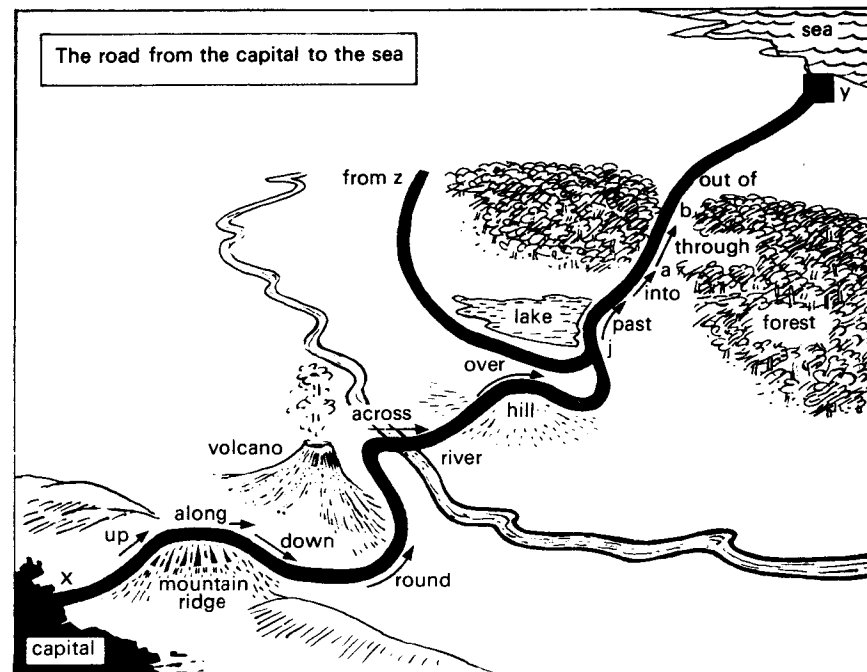
Now write complete sentences joining these pairs of events and making any other necessary changes:

- |        |        |  |
|--------|--------|--|
| d + *b | *e + b | *Use one of these expressions:<br>when            before            as soon as<br>until            after |
| *c + d | *a + e |  |
| *b + a | *a + f |  |

Example: As soon as the gas is turned off, the flame is extinguished.

## Section 2 Sequences

4. Look at this diagram:



Now complete this description:

A road leaves the capital at x. It goes \_\_\_\_\_ a mountain, \_\_\_\_\_ a ridge and \_\_\_\_\_ the other side. It goes \_\_\_\_\_ a volcano, \_\_\_\_\_ a river and \_\_\_\_\_ a hill. It joins the road \_\_\_\_\_ z \_\_\_\_\_ the junction, j. It goes \_\_\_\_\_ a lake and \_\_\_\_\_ a forest. It goes \_\_\_\_\_ the forest \_\_\_\_\_ a and comes \_\_\_\_\_ the forest \_\_\_\_\_ b. The road reaches the sea \_\_\_\_\_ y.

Look at these sentences:

After *the road leaves the capital at x*, it goes up the mountain.  
After *leaving the capital at x*, the road goes up the mountain.

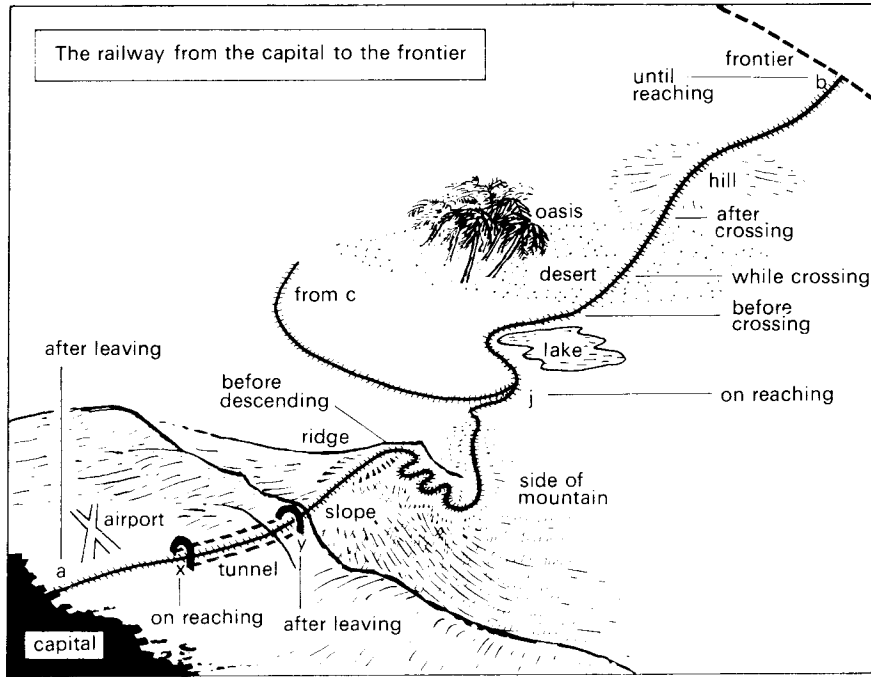
When the road reaches *a*, it goes into the forest.  
On *reaching a*, the road goes into the forest.

Change these sentences into the second form:

- a) After the road goes round the volcano, it crosses the river.
- b) Before the road enters the forest, it passes the lake.
- c) When the road emerges from the forest, it is near the sea.
- d) After the road ascends the hill, it goes along the ridge.

- e) Before it goes round the volcano, the road descends the mountain.
- f) As it goes between the hill and the lake, the road joins the road from z. (*While going . . .*)
- g) When the road reaches the volcano, it goes round it.
- h) As the road travels from x to y, it crosses a river.

**5. Look at this diagram:**



Now write nine sentences using the opening phrases in the diagram.

*Example:* After leaving the capital at a, the railway goes past the airport.

**6. Look at these sentences:**

*While crossing* the desert, the railway *passes* an oasis.  
 The railway *crosses* the desert, *passing* an oasis.  
 (X is simultaneous with Y, or occurs during Y)

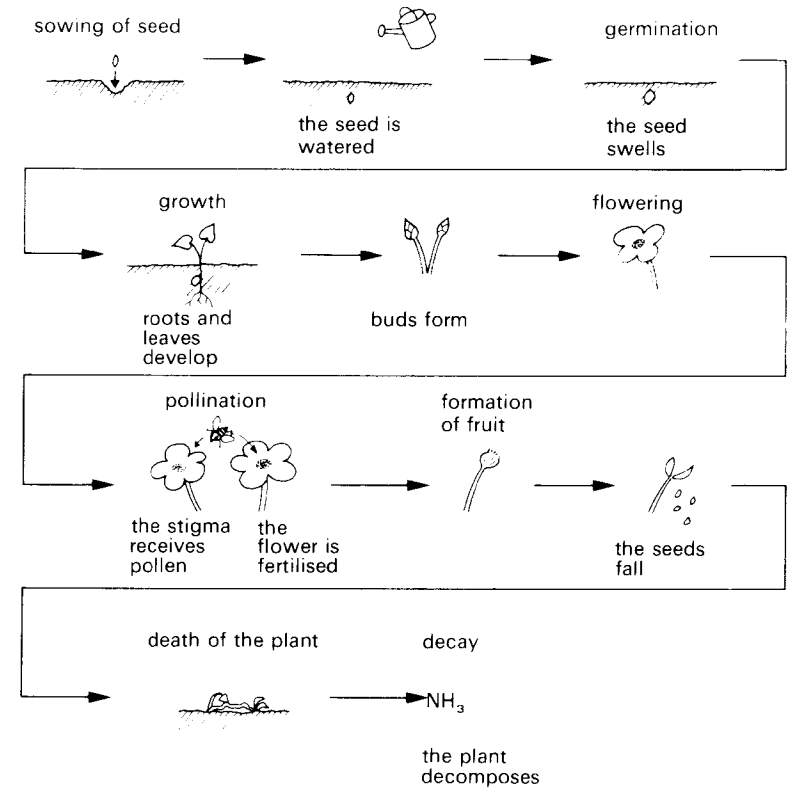
Now change these sentences into the second form:

- a) While going through the tunnel, the railway passes under the mountain.
- b) While descending the mountain, the railway makes several turns.

- c) While passing the lake, the railway travels in a semi-circle.
- d) While crossing the desert, the railway passes an oasis.
- e) While approaching the frontier, the railway goes over a hill.
- f) While travelling between the mountain and the lake, the railway joins the railway line from c.

**Section 3 Cycles**

**7. Look and read:**



Stages in the life-cycle of a plant

Look at these examples:

*Preceding actions:*

*Before the plant germinates, it is watered.*

*Before } germination, the seed is watered.*  
*Prior to }*

*Following actions:*

*After the plant germinates, the roots and leaves develop.*

*After germination, the roots and leaves develop.*

*Simultaneous actions:*

*As the plant germinates, the seed swells.*

*During germination, the seed swells.*

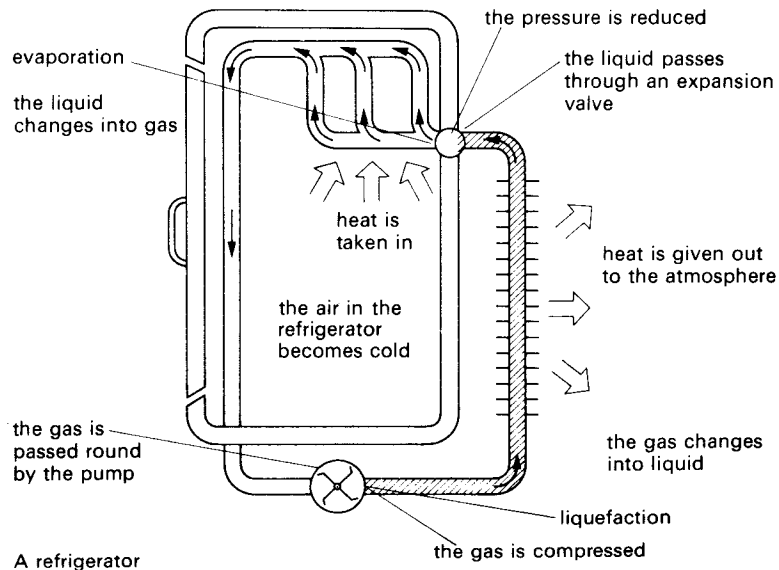
And this example:

After the seed is watered, *germination*  $\left\{ \begin{array}{l} \text{occurs.} \\ \text{takes place.} \end{array} \right.$

Now answer these questions:

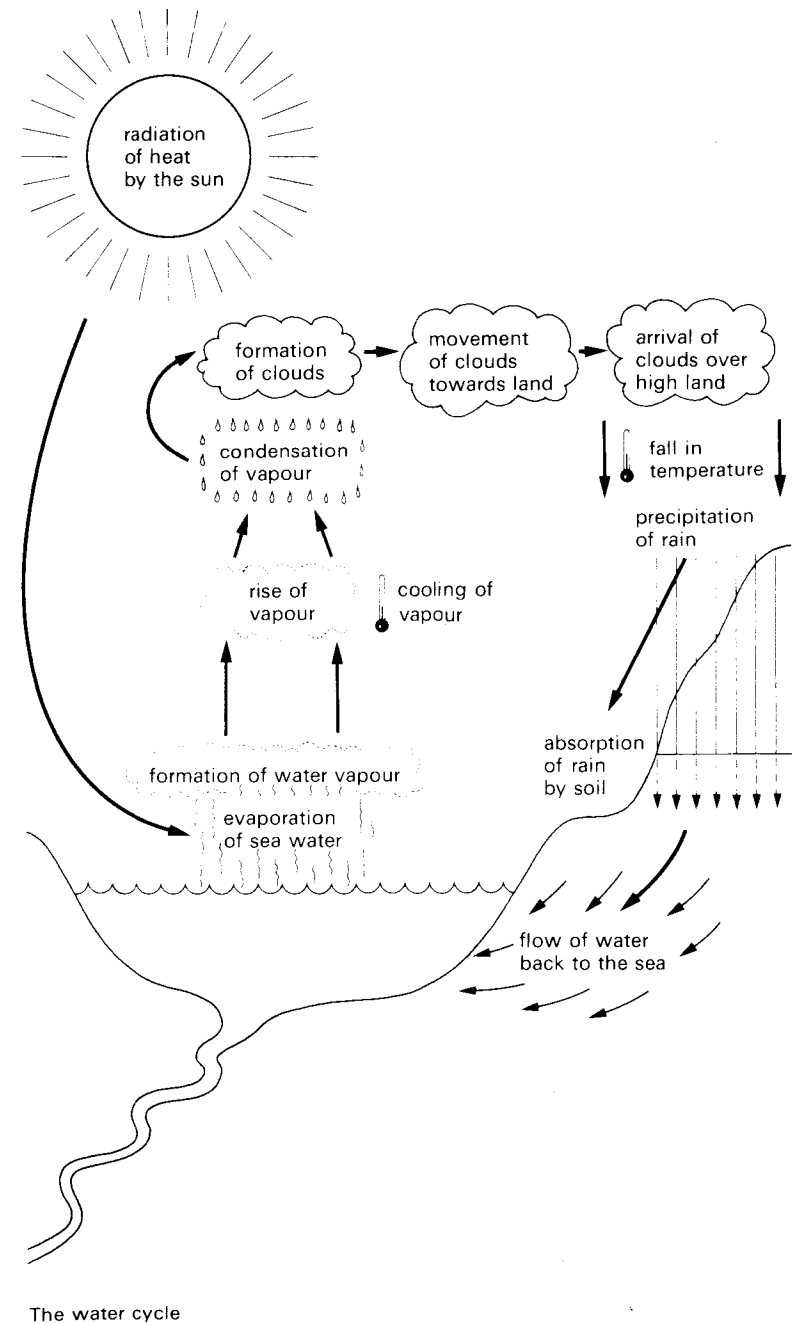
- What happens prior to germination?
- What occurs during growth?
- What happens before flowering?
- What takes place after pollination?
- What happens after the seeds fall?
- What occurs before the plant decomposes?
- What occurs as the plant decomposes?

8. Look at this:



Write a description of the cycle of events in a refrigerator.

9. Look and read:



Now write a description of the cycle by joining the correct half-sentences :

When the sun radiates heat, As soon as the water vapour forms, While rising,	until they reach high land. rain is precipitated. the water flows back to the sea.
When the vapour cools, During condensation, The clouds then move towards land, When the clouds reach high land, As the temperature falls, On being precipitated, After being absorbed,	the vapour cools. it begins to rise. clouds are formed. it condenses. sea water evaporates. the air temperature falls. the rain is absorbed by the soil.

## Section 4 Stages

10. Look again at the life-cycle of a plant and then read this description:

*First*, the seed is sown.  
*Next*, it is watered.  
*Then*, the seed begins to swell.  
*At this stage*, germination begins.  
*Subsequently*, the roots develop.  
*Meanwhile*, the leaves also develop.

*Later*, flowers appear.  
*Then*, pollination takes place.  
*During this process*, the stigma receives pollen.  
*Afterwards*, the fruit forms.

*Eventually*, the plant dies.  
*Finally*, the plant decomposes.

The words in *italics* mark stages in a process. Now give the following:

- A word which marks the opening, or initial stage.
- A word which marks the last, or ultimate, stage.
- Two words which mark next or following stages
- Three expressions which mark events occurring some time later.
- Three expressions which mark simultaneous events.
- One word which marks an event occurring after a long process.

11. Put these stages in the right order and then match them with the expressions on the left:

*Example:* First, the site is bought.

Stages in building a house

First,	the drains are dug.
Then,	the materials are bought.
Meanwhile,	the house is painted.
Subsequently,	the walls are built.
At this stage,	the site is bought.
Next,	the site is levelled.
Afterwards,	the foundations are laid.
Then,	the house is ready to live in.
Later,	the roof is made.
Eventually,	the doors and windows are put in.
Finally,	the electricity and water systems are installed.