

# Flooding

### Explanatory Notes for Teachers

Level: S2

Topic: Flooding – too much water

Supporting Teaching Materials: Students' worksheet

#### Students' Prior Knowledge

Before this ELA unit, students should have learnt about the topic of flooding and human activities through the medium of Chinese.

#### Aims and Objectives

##### I. Content Objectives

After the ELA activities, students should be able to use English to:

1. describe water cycles;
2. explain the causes and the impact of flooding; and
3. identify the relationship between human activities and flooding

##### II. Language Objectives

After the ELA activities, students should be able to

1. understand and use the English terms related to this topic (e.g., *flooding, natural event, damage, occur, overflow, affected, low-lying areas, coastal areas, drowned, floodwater, farmlands, destroyed, life and property, soil protection, flood control, forecast, warning, depositions, alluvium, rich soil, suitable for, vegetation, farming, attract, human settlement*);
2. understand and use the English expressions for discussing the water cycle, e.g.,
  - *The sun heats up water in rivers or lakes or the ocean and turns it into vapour or steam.*
  - *As the water in rivers or lakes or the ocean evaporates, the vapour or steam goes up into the air.*
  - *When the water vapour in the air condenses, it changes into tiny droplets to form clouds.*
  - *When there is so much water that the air cannot hold it anymore, the clouds get heavy and water falls back to the earth in the form of rain, hail, sleet or snow.*
  - *When water falls back to earth as precipitation, it may fall back into the oceans, lakes or rivers or it may fall on the land.*
  - *When it falls on land, it will either soak into the earth and become part of the “ground water” that plants and animals use to drink or it may run over the soil and collect in the oceans, lakes or rivers where the cycle starts*

3. understand and use the English expressions for discussing the key concepts related to flooding, e.g.,
  - *Flooding is a common natural event and it may cause damage to people's lives and their land.*
  - *A flood occurs when water overflows from a river, lake or ocean onto the land.*
  - *Places along the coast or rivers can be affected by flooding.*
  - *When a flood occurs, low-lying areas and coastal areas may be drowned by floodwater.*
  - *Farmlands may be flooded and crops destroyed.*
  - *Life and property of the people in the affected areas may be threatened.*
  - *Other problems such as lack of clean water and spread of disease may affect the life of people after floods.*
  - *The damage caused by floods can be reduced by soil protection, flood control work and flood forecasts and warnings.*
  - *Flood water carries deposits such as sand, mud and stones.*
  - *These deposits are called alluvium and create a layer of rich soil for the low-lying areas – the flood plain.*
  - *The flood plain is suitable for vegetation and farming, and attracts human settlement.*

Procedure:

1. The teacher should start by reminding students of what they have learned about flooding and associated human activities through the medium of Chinese.
2. The **Introduction – Think-Pair-Share** activity provides students with opportunities to make use of their existing knowledge to tell what they know about floods. Each pair can be asked to report what they have discussed.
3. An information sheet is provided giving students the basic information about flooding, its impact and what we can do to prevent it.
4. After they have read the information sheet, students can be asked to complete **Activity 1**. This activity helps students review what they know about the water cycle. Students should be asked to re-order the words to create accurate sentences describing the water cycle.
5. Based on their reading of the information sheet, students should be asked to complete **Activity 2** where they categorize causes of floods into natural and human causes. The activity engages students to read information about the causes of flooding in English and classify information using a graphic tool.
6. **Activity 3** focuses on how human activities relate to floods. Students match the given examples of human activities with the possible consequences in terms of soil erosion that results in flooding.
7. **Activity 4** is a group work activity. Students work in groups and categorize the after-flood measures into immediate and long-term measures. Students need to justify their choices and should be ready to explain to the class.

## Flooding

### Introduction

**Work in pairs and discuss these questions.**

A. Which of the areas in Hong Kong is/are often affected by floods? (mark the areas on a map)

| What I think..... | What my classmate thinks... | What we agree about..... |
|-------------------|-----------------------------|--------------------------|
|                   |                             |                          |

B. Tell how these aspects would be affected during floods.

i. Farmland in Hong Kong

| What I think..... | What my classmate thinks... | What we agree about..... |
|-------------------|-----------------------------|--------------------------|
|                   |                             |                          |

ii. Traffic on roads

| What I think..... | What my classmate thinks... | What we agree about..... |
|-------------------|-----------------------------|--------------------------|
|                   |                             |                          |

iii. Shops

| What I think..... | What my classmate thinks... | What we agree about..... |
|-------------------|-----------------------------|--------------------------|
|                   |                             |                          |

C. How can we help people who are affected (i) during floods and (ii) immediately after floods?

| What I think..... | What my classmate thinks... | What we agree about..... |
|-------------------|-----------------------------|--------------------------|
|                   |                             |                          |

## INFORMATION SHEET

### **What is flooding?**

Flooding is a common natural event and it may cause damage to people's lives and their land and property. A flood occurs when water overflows from a river, lake or ocean onto the land. Therefore, places along the coast or rivers can be affected by flooding.

### **How are we affected when a flood occur?**

When a flood occurs, low-lying areas and coastal areas may be drowned by floodwater. Farmlands may be flooded and crops destroyed. The lives and the property of the people in the affected areas may be threatened. Other problems such as lack of clean water and spread of disease may affect the lives of people after floods.

### **What can we do to reduce the damage from floods?**

1. Soil protection: Flood water can wash away soil. The roots of plants can bind and hold the soil together and stop this happening. We can protect soil by making sure that vegetation is not removed by processes such as deforestation, overgrazing and overcultivation.
2. Flood control work: We can build dykes, dams and reservoirs to hold back water in times of flood. Water management work can help to improve the water flow in rivers.
3. Advance warning: Flood forecasts and warnings help us to act fast in fighting against floods and in minimizing the damage from floods.

### **Is flooding all bad?**

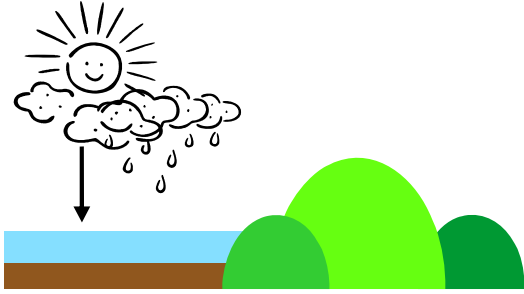
Flood water brings along deposits such as sand, mud and stones. These deposits are called alluvium and create a layer of rich soil for the low-lying areas – the flood plain. The flood plain is suitable for vegetation and farming, and attracts human settlement.

**Activity 1**

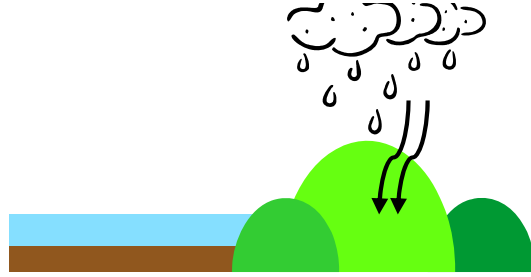
**Water Cycle – movement of water on earth**

The following pictures show the water cycle. Can you describe the pictures?

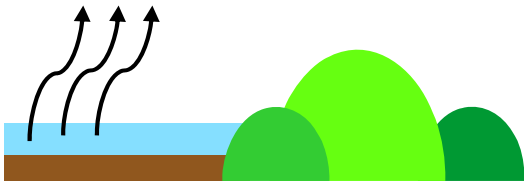
1. sun's rays/water/the/heat/the



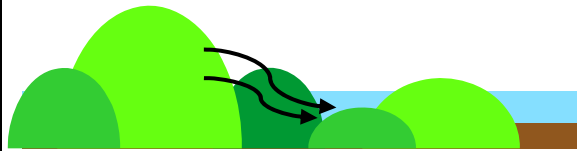
5. water / gets / soil / the /into / the



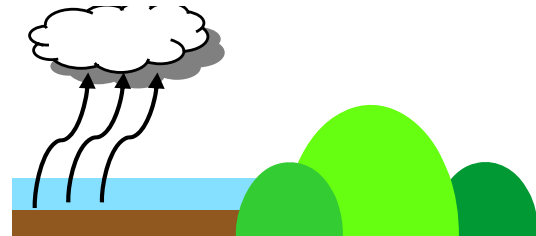
2. water / evaporates / the



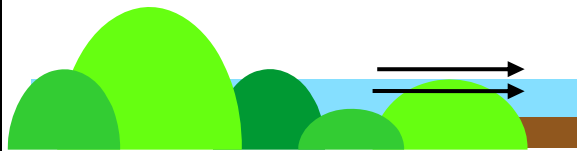
6. water / is / lakes / reservoirs / in / stored / and / the



3. water vapour / condenses / form / clouds / to / the



7. rivers / ocean / flow / to / the



4. rain / the/ falls / land / on / the





*Study the water cycle and complete the sentences below to answer questions 1-3*

i. Why does flooding occur?

Floods occur when \_\_\_\_\_ fail to carry water \_\_\_\_\_ quickly enough.

ii. At which stages is flooding most likely to occur?

Flooding is most likely to occur in \_\_\_\_\_ and \_\_\_\_\_.

iii. Why doesn't the water flow away?

The water does not flow away because \_\_\_\_\_  
\_\_\_\_\_.

## Activity 2 Human causes and natural causes of floods

Work with a partner. Put the causes of floods into 2 categories: natural causes and human causes

Language practice: I think (cause) is a natural / human cause of floods.

| Natural causes of floods | <b><u>Floods are caused by:</u></b> | Human causes of floods |
|--------------------------|-------------------------------------|------------------------|
|                          | 1. deforestation                    |                        |
|                          | 2. heavy rainfall                   |                        |
|                          | 3. low relief                       |                        |
|                          | 4. poor farming practices           |                        |
|                          | 5. poor water management            |                        |
|                          | 6. population pressure              |                        |
|                          | 7. rise in sea level                |                        |
|                          | 8. snowmelt                         |                        |



### Pair Reading

#### Why there is too much water?

A flood is a result of water overflowing onto the land. When there is (1) too much/too little water in the river, the river rises and water goes over the river bank. Floods occur in low-lying areas. Heavy rainfall (2) decreases/increases the amount of water flow in the river. Coastal lowlands are easily flooded when the sea level (3) rises/falls, for example during a storm. Snowmelt also leads to seasonal increase of water and results in floods on the lowlands.

Find words/phrases with the same meanings from the passage.

| Rises (v.) | Water flow (n.) | Low-lying areas (n.) |
|------------|-----------------|----------------------|
|            |                 |                      |

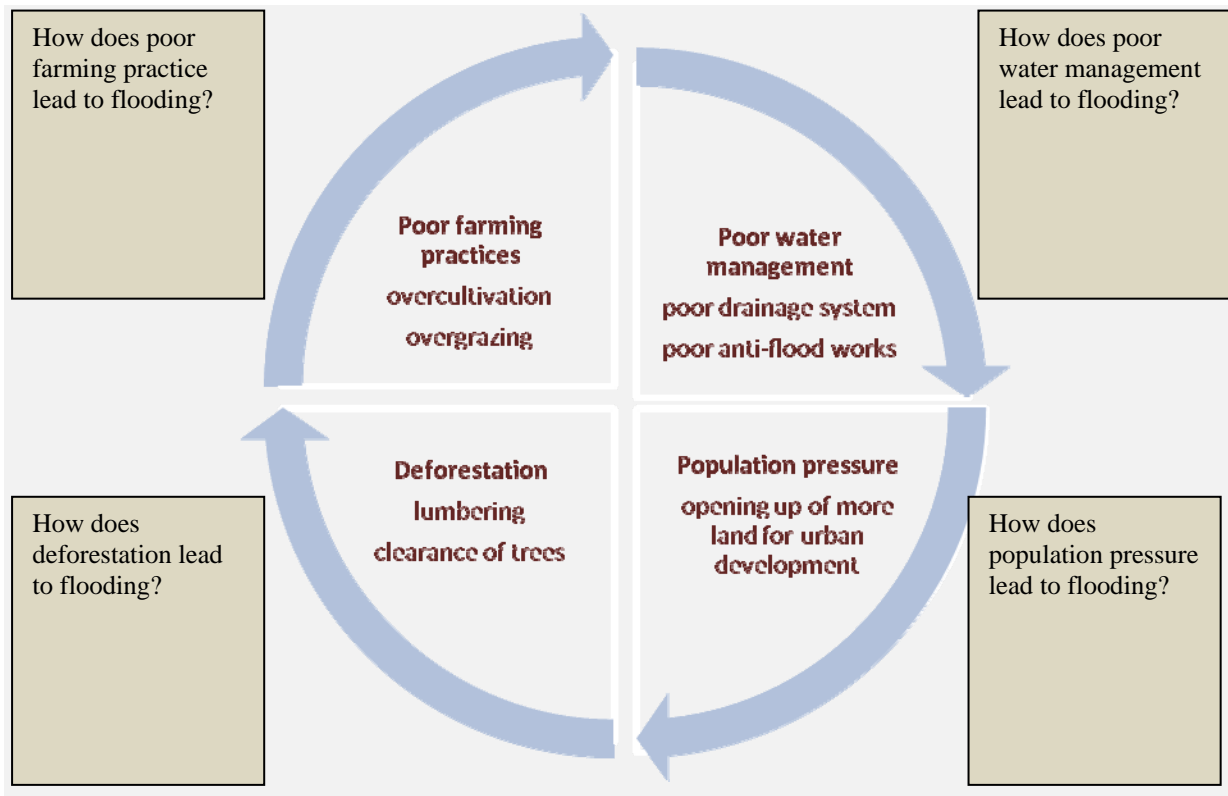
### Activity 3

### Human activities and floods

**Part A** - Match the statements in Column A with the corresponding consequences in Column B.

| How the human activities cause soil erosion and lead to flooding? |   |
|---|---|
| Column A<br>Human activities                                      | Column B<br>Consequences from the human activities    |
| A. Farmers remove the vegetation cover.                           | i. Dykes and dams fail to hold the water.             |
| B. Threes which bind the soil are removed.                        | ii. Silting increases the water volume in the rivers. |
| C. Anti-flood works are not of good quality.                      | iii. Soil will be washed into the river easily.       |
| D. People reclaim lakes to create more land.                      | iv. More water has to flow downstream.                |

**Part B**- The diagram below shows the human causes of flooding. Use the information from Part A to complete the diagram.





## Activity 4      How do people respond to floods

Below is a list of things people often do after flooding. Work in groups to decide which of the actions are long-term responses and which are emergency relief.

Colour the emergency measures in GREEN and long-term after-flood measure in ORANGE.

|   |   |   |
|---|---|---|
| 1<br>Start rescue work                    | 2<br>Relocate people                              | 3<br>Put sandbags on river banks                  |
| 4<br>Provide emergency aids such as food, | 5<br>Repair damaged buildings                     | 6<br>Build dams and reservoirs                    |
| 7<br>Restore utilities and services       | 8<br>Set up flood forecasting and warning systems | 9<br>Carefully plan land use in flood-prone areas |
| 10<br>Control deforestation               | 11<br>Plant trees to check soil erosion           | 12<br>Build diversion channels and dykes          |

| Which of the above are flood-prevention measures? |
|---|
|   |
|   |
|   |
|   |
|   |

### Further reading



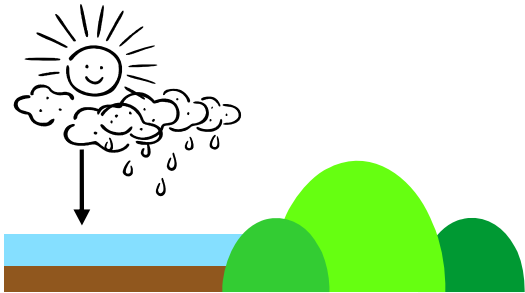




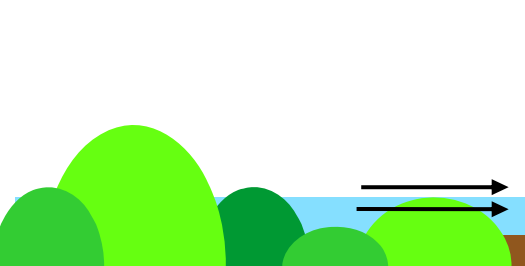

Rain and Floods <http://www.weatherwizkids.com/Rain.htm>



BBC Newsround Floods  
[http://news.bbc.co.uk/cbbcnews/hi/find\\_out/guides/world/floods/newsid\\_1613000/1613858.stm](http://news.bbc.co.uk/cbbcnews/hi/find_out/guides/world/floods/newsid_1613000/1613858.stm)

Activity 1 Water Cycle – movement of water on earth

The following pictures show the water cycle. Can you describe the pictures?

|   |   |
|---|---|
| <p>1. sun's rays/water/the/heat/the</p>  <p>The sun's rays heat the water.</p>                                     | <p>5. water / gets / soil / the /into / the</p>  <p>The water gets into the soil.</p>                                     |
| <p>2. water / evaporates / the</p>  <p>The water evaporates.</p>  | <p>6. water / is / lakes / reservoirs / in / stored / and / the</p>  <p>The water is stored in lakes and reservoirs.</p> |
| <p>3. water vapour / condenses / form / clouds / to / the</p>  <p>The water vapour condenses to form clouds.</p> | <p>7. rivers / ocean / flow / to / the</p>  <p>Rivers flow to the ocean.</p>  |
| <p>4. rain / the/ falls / land / on / the</p>  <p>The rain falls on the land.</p>                                |   |



*Study the water cycle and complete the sentences below to answer questions 1-3*

1) Why does flooding occur?

Floods occur when rivers fail to carry water to the ocean quickly enough.

2) At which stages is flooding most likely to occur?

Flooding is most likely to occur in stage 6 and stage 7.

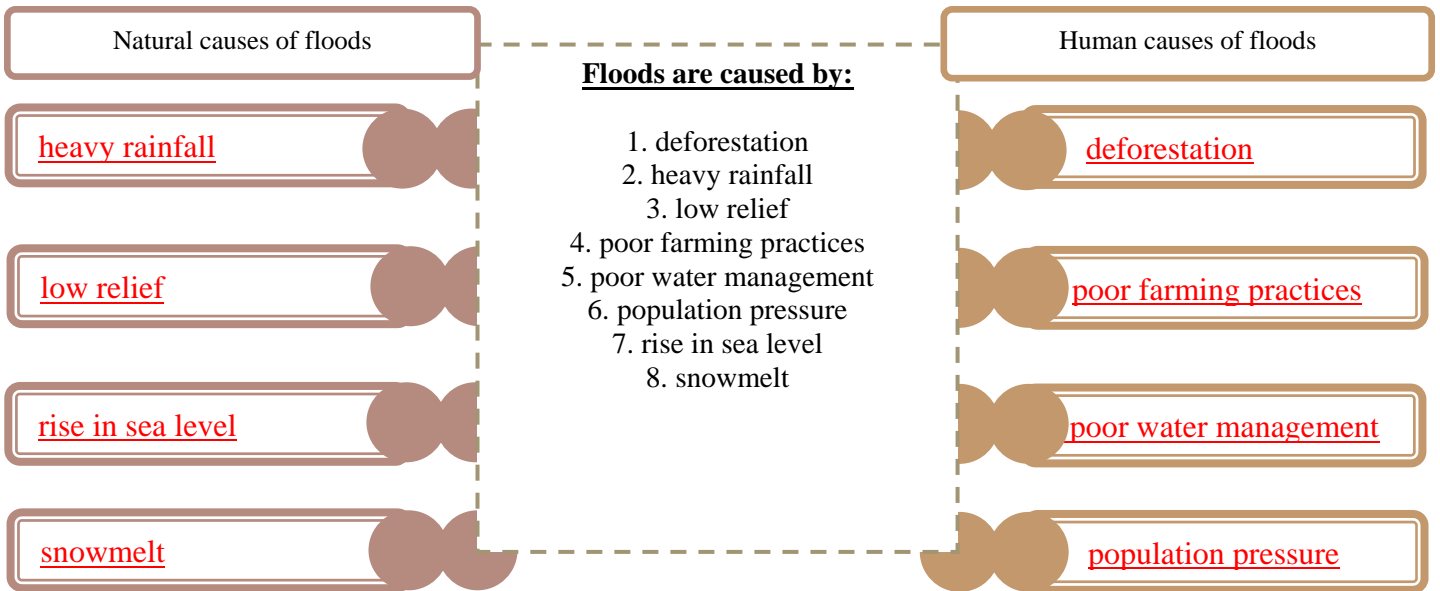
3) Why doesn't the water flow away?

The water does not flow away because (the rivers lakes and reservoirs are full and) the river cannot carry away the water quickly enough.

Activity 2 Human causes and natural causes of floods

Work with a partner. Put the causes of floods into 2 categories: natural causes and human causes

Language practice: I think cause is a natural / human cause of floods.



Pair Reading

Why there is too much water?

A flood is a result of water overflowing onto the land. When there is (1) too much/too little water in the river, the river rises and water goes over the river bank. Floods occur in low-lying areas. Heavy rainfall (2) decreases/increases the amount of water flow in the river. Coastal lowlands are easily flooded when the sea level (3) rises/falls, for example during a storm. Snowmelt also leads to seasonal increase of water and results in floods in the lowlands.

Find words/phrases with the same meanings from the passage.

| Rises (v.)       | Water flow (n.)   | Low-lying areas (n.)    |
|------------------|-------------------|-------------------------|
| <u>increases</u> | <u>water goes</u> | <u>coastal lowlands</u> |

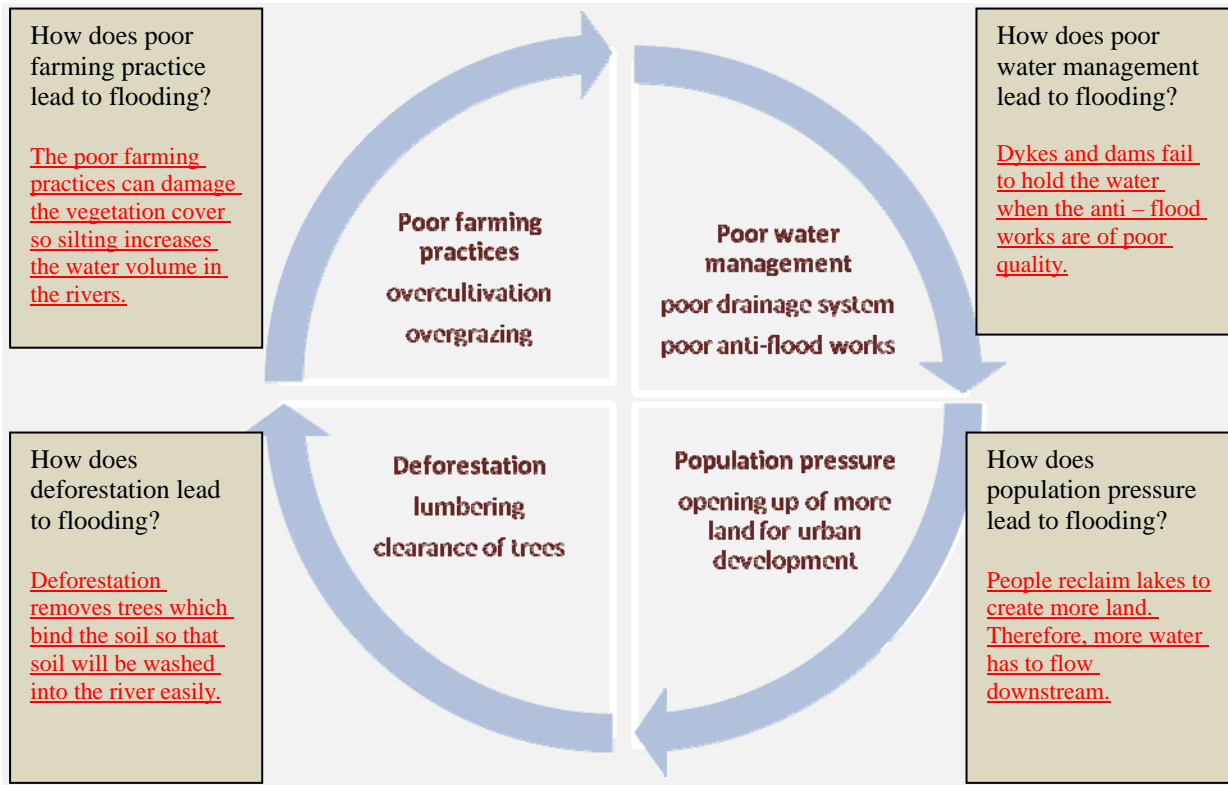
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**Part B-** The diagram below shows the human causes of flooding. Use the information from Part A to complete the diagram.



**Activity 4      How do people respond to floods**

Below is a list of things people often do after flooding. Work in group to decide which of the actions are long-term responses and which are emergency relief.

Colour the emergency measures in GREEN and long-term after-flood measure in ORANGE.

|  |  |  |
|--|--|--|
| 1<br>Start rescue work<br><i>(green)</i>   | 2<br>Relocate people<br><i>(orange)</i>                              | 3<br>Put sandbag on river banks<br><i>(green)</i>                    |
| 4<br>Provide emergency aids such as food, shelter and medical care<br><i>(green)</i> | 5<br>Repair damaged buildings<br><i>(green)</i>                      | 6<br>Build dams and reservoirs<br><i>(orange)</i>                    |
| 7<br>Restore utilities and services<br><i>(orange)</i>                               | 8<br>Set up flood forecasting and warning systems<br><i>(orange)</i> | 9<br>Carefully plan land use in flood-prone areas<br><i>(orange)</i> |
| 10<br>Control deforestation  | 11<br>Plant trees to check soil erosion<br><i>(orange)</i>           | 12<br>Build diversion channels and dykes<br><i>(orange)</i>          |

**Which of the above are flood-prevention measures?**

*Build dams, reservoirs, diversion channels and dykes.*

*Set up flood forecasting and warning systems.*

*Careful planning of land use in flood-prone areas*

*Control deforestation*

*Plant trees to check soil erosion.*

**Further reading**



Rain and Floods <http://www.weatherwizkids.com/Rain.htm>



BBC Newsround Floods

[http://news.bbc.co.uk/cbbcnews/hi/find\\_out/guides/world/floods/newsid\\_1613000/1613858.stm](http://news.bbc.co.uk/cbbcnews/hi/find_out/guides/world/floods/newsid_1613000/1613858.stm)