

# Seeds Honour Booklet



**Name:** \_\_\_\_\_

**Church:** \_\_\_\_\_

**Club:** \_\_\_\_\_

**Class** \_\_\_\_\_

**Due Date:** \_\_\_\_\_

**In order to successfully complete this honour, you must:**

1. Satisfactorily complete this Booklet. The pass mark is 75% (maximum score – 150 marks) **and**
2. Pass the Seeds Honour Exam. The pass mark is 50%

Booklet Score \_\_\_\_\_

Exam Score \_\_\_\_\_

Honour Granted      Yes         No  

\_\_\_\_\_  
Authorized Signature

1. The main purpose of a seed is to \_\_\_\_\_ . [1]

2. What does Genesis 1:29 tell us about the first foods that were given to man? [2]

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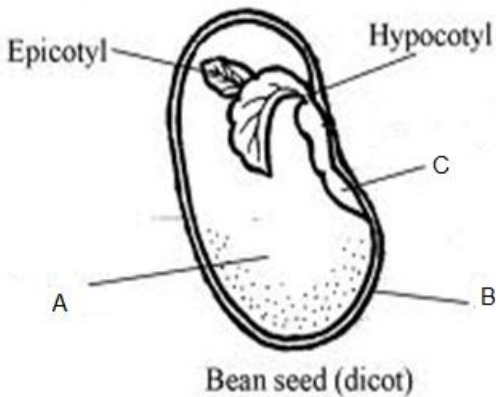
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3. Complete the blank cells in the table below. [4]

<b>Part of Seed</b>	<b>Purpose</b>
Seed Coat	The protective covering around the seed.
Endosperm	
	The part of the seed from which a new plant will grow under proper conditions. It consists of the cotyledon(s), epicotyl, hypocotyls and radicle.
Cotyledons	Also called “Seed Leaves”. These are the first little leaves that you see when the plant sprouts. They are fully formed inside the seed.
Epicotyl	

Part of Seed	Purpose
Hypocotyl	
Radicle	The root portion of the embryo. It pushes out and down to become a root, and breaks a hole in the seed coat so the cotyledons can push out and grow upward.



4. Correctly label the following parts of the seed based on the picture above. [3]

A – \_\_\_\_\_

B – \_\_\_\_\_

C – \_\_\_\_\_

5. If seeds simply fell below the parent plants, they would be too overcrowded and starved of \_\_\_\_\_; hence it is important that seeds are \_\_\_\_\_ over a wide area where they stand a better chance of finding the right conditions to grow. Several methods by which seeds are scattered are mentioned in the following paragraphs. **[2]**

6. For some plants that grow on land, their seeds are carried to a new place by the \_\_\_\_\_. These seeds are usually \_\_\_\_\_ and \_\_\_\_\_. Many seeds also have \_\_\_\_\_ and \_\_\_\_\_ that help to carry them far away from the parent plant. Some plants whose seeds are scattered by this method are:

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_ **[8]**

7. Plants that grow in \_\_\_\_\_ are likely to use this to disperse their seeds. All mangroves scatter their offspring by \_\_\_\_\_. One way in which a seed is dispersed is when the \_\_\_\_\_ separates from the fruit, leaving its \_\_\_\_\_ behind, and \_\_\_\_\_ horizontally on the \_\_\_\_\_ surface, is carried away by

\_\_\_\_\_ or river flow. After a month or two, the propagated (or \_\_\_\_\_) seed turns \_\_\_\_\_ in the \_\_\_\_\_. Once it 'feels' bottom or strands, \_\_\_\_\_ start to grow and \_\_\_\_\_ appear at the upper end. **[12]**

8. Another way in which seeds are dispersed by this method is when plants that live in \_\_\_\_\_ are those that allow the fruit to \_\_\_\_\_ and let the seed be carried away by the \_\_\_\_\_ or \_\_\_\_\_ currents. Examples of such fruits are:

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_ **[7]**

9. Some plants have a juicy fruit that \_\_\_\_\_ like to eat. When they eat the fruit the juicy part is digested, however the \_\_\_\_\_ are not, and they come out in the \_\_\_\_\_ and form new plants where they are. Some seeds scattered this way are:

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_ **[6]**

10. Some plants, e.g. \_\_\_\_\_, have sticky fruits which are attractive to \_\_\_\_\_ and stick to their \_\_\_\_\_. When the bird rubs its beak clean on the bark of a tree, the sticky seeds are left on the bark to grow into new plants. **[3]**

11. Some rodents, such as \_\_\_\_\_, collect \_\_\_\_\_ and bury them for winter food. In cases where they do not remember where they buried their food, the seeds germinate and grow into a new plant. **[2]**

12. Plants such as \_\_\_\_\_ which have prickly \_\_\_\_\_ or spikes attach themselves to a passing \_\_\_\_\_ fur or feathers so that it will carry them away. **[3]**

13. Heavier seeds tend to \_\_\_\_\_ from the parent plant and by themselves, do not travel very far. Many conifers (plants that produce naked seeds in cones) take full advantage of seed dispersal by \_\_\_\_\_. Examples of these plants are:

(i)	(ii)
(iii)	(iv)
(v)	(vi)

**[9]**

14. Some plants are naturally able to overcome the tendency of having the seed fall close to the parent. \_\_\_\_\_ are often shaped so that the seeds are \_\_\_\_\_ away from the parent plant with \_\_\_\_\_ as they mature. This type of dispersion is called \_\_\_\_\_ dispersion. Examples of fruits with this dispersal mechanism are:

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_ . [7]

15. All seeds need adequate amounts of \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and the correct \_\_\_\_\_ conditions for germination. Seeds also need suitable \_\_\_\_\_. Some seeds germinate well in the presence of \_\_\_\_\_ while others may require \_\_\_\_\_ to start germination. Each type of seed requires a different combination of the above factors for successful germination. The most important external factors are discussed next. [7]

16. Germination requires moist conditions. Mature seeds are usually very dry and need a lot of \_\_\_\_\_ before germination can begin. When seeds absorb water there is a noticeable \_\_\_\_\_. The pressure caused by water aids in \_\_\_\_\_ the seed coat for

germination. When seeds are formed, most plants store large amounts of food, such as \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_, for the embryo inside the seed. When the seed takes water in, it breaks down these stored food resources and allows the seedling to germinate and grow until it reaches the light. Once the seedling starts growing, it requires a continuous supply of water and \_\_\_\_\_. [7]

17. Most seeds respond best when water levels are enough to moisten the seeds but not soak them, and when \_\_\_\_\_ is readily available. Once the seed coat is cracked, the germinating seedling requires \_\_\_\_\_. If the seed is over-watered it may prevent the seed from getting the necessary \_\_\_\_\_. [3]

18. Seeds germinate over a wide range of \_\_\_\_\_, with many preferring temperatures slightly higher than room-temperature. Often, seeds have a set temperature range for sprouting and will not sprout above or below a certain temperature. In addition, some seeds may require exposure to \_\_\_\_\_ or to cold temperature to break dormancy before they can germinate. As long as the seed is in its dormant state, it will not germinate even if conditions are favourable. For example, seeds requiring the cold of winter are inhibited from germinating if they



never experience frost. Some seeds will only germinate when temperatures reach hundreds of degrees, as during a forest fire. Without fire, they are unable to crack their seed coats. Many seeds in forest settings will not germinate until an opening in the canopy allows them to receive sufficient light for the growing seedling. [2]

19. Seeds must be \_\_\_\_\_ and environmental factors must be \_\_\_\_\_ before germination can take place. When a mature seed is placed under favourable conditions and fails to germinate, it is said to be \_\_\_\_\_. Some seeds will not germinate (begin to grow) until they have been dormant for a while. The length of time plant seeds remain dormant can be reduced or eliminated by a simple seed treatment called \_\_\_\_\_. Seeds should be planted promptly after this treatment. [4]

20. Stratification imitates natural processes that \_\_\_\_\_ the seed coat before germination. In nature, some seeds require particular conditions to germinate, such as the heat of a fire (e.g., many Australian native plants), or soaking in a body of water for a long period of time. Others have to be passed through an animal's digestive tract to weaken the seed coat and enable germination. [1]

21. The main steps of seed germination can be summarized as follows:

- (i) Seeds absorb water causing the \_\_\_\_\_  
 \_\_\_\_\_ to burst. Enzymes are activated,  
 respiration is increased and plant cells are  
 duplicated. The plant \_\_\_\_\_ is developed.
- (ii) \_\_\_\_\_ is converted to \_\_\_\_\_  
 which is used during germination. The embryo is  
 enlarged and the seed coat bursts open.
- (iii) The growing plant emerges. First the tip of the  
 \_\_\_\_\_ comes out and helps to  
 anchor the seed in place. It also allows the embryo  
 to absorb minerals and water from soil.
- (iv) Some seeds require special treatment of  
 temperature, light or water to start  
 \_\_\_\_\_. [7]

22. List ten (10) kinds of seeds that are used for food: [10]

<b>Seeds Used for Food</b>	
a)	b)
c)	d)
e)	f)
g)	h)
i)	j)

23. List five (5) kinds of seeds that are used as sources of oil:

**[5]**

<b>Seeds Used as Sources of Oil</b>	
(i)	(ii)
(iii)	(iv)
(v)	

24. List five (5) kinds of seeds that are used as spices: **[5]**

<b>Seeds Used as Spices</b>	
(i)	(ii)
(iii)	(iv)
(v)	

25. Make a collection of 30 different kinds of seeds, of which only ten may be collected from commercial seed packages, the other 20 you are to collect yourself. Label each kind as follows: seed name, date collected, location collected, and collector's name. You should display them on a board and submit with this booklet. **[30]**

## **SEEDS HONOUR REQUIREMENTS**

Level 1 Year 1961 General Conference

1. What is the main purpose of a seed?
2. What foods were first given to man in the Garden of Eden?
3. Identify from a seed or drawing and know the purpose of each of these parts of a seed: seed coat, cotyledon, embryo.
4. List from memory four different methods by which seeds are scattered. Name three kinds of plants whose seeds are scattered by each method.
5. List from memory ten kinds of seeds that we use for food.
6. List from memory five kinds of seeds that are used as sources of oil.
7. List from memory five kinds of seeds that are used for spices.
8. What conditions are necessary for a seed to sprout?
9. Make a collection of 30 different kinds of seeds, of which only ten may be collected from commercial seed packages, the other 20 you are to collect yourself. Label each kind as follows: seed name, date collected, location collected, and collector's name.