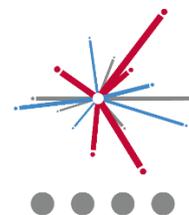


# Ark Pioneer learning at Home

## Core Curriculum

### Science – *with Additional Support*



#### Work to be completed

- Day 1- Knowledge organiser-based revision
- Day 2- Puberty questions
- Day 3- Seed dispersal questions
- Day 4- Exam practice question
- Day 5- *Stretch Activity*: News article plus questions

#### Resources / links to help with work:

- <https://www.bbc.co.uk/bitesize/guides/z9fgr82/revision/1>
- [https://www.youtube.com/watch?v=bFPSS2im\\_3o](https://www.youtube.com/watch?v=bFPSS2im_3o)
- <https://www.bbc.co.uk/bitesize/guides/zs7thyc/revision/1>
- <https://www.thenational.academy/year-7/science/adaptations-year-7-wk1-2>

#### How will this work be checked?

Each week you will be given 'red pen work' to carry out corrections on the learning that you are doing at home. Please make sure this work is done and that you correct all work in your exercise book.

You must also complete the weekly quiz for your core curriculum subjects online and the link to those is on our school website in the 'quizzes' drop-down option from 'Home Learning'.

#### How much time should I be studying and what happens if I don't finish all my work?

For core curriculum subjects you are expected to do 30min each day as a minimum. Those subjects are English language, English literature, Maths, Science, History and Geography. These subjects all have a weekly quiz and will be checked in on by your form teacher when they call each week.

All other subjects are 'Extended Curriculum' and they should be done after you have finished the Core Curriculum tasks for the day. You should plan to do work in different subjects each day. We recommend that pupils do one hour per week in each of the 'extended curriculum' subjects.

We recognise that it is not possible for all pupils to complete all work given the exceptional circumstance. Please speak with your form tutor about the work if it is becoming unmanageable.



Aim high



Have integrity



Be kind



Model determination

## Reproduction

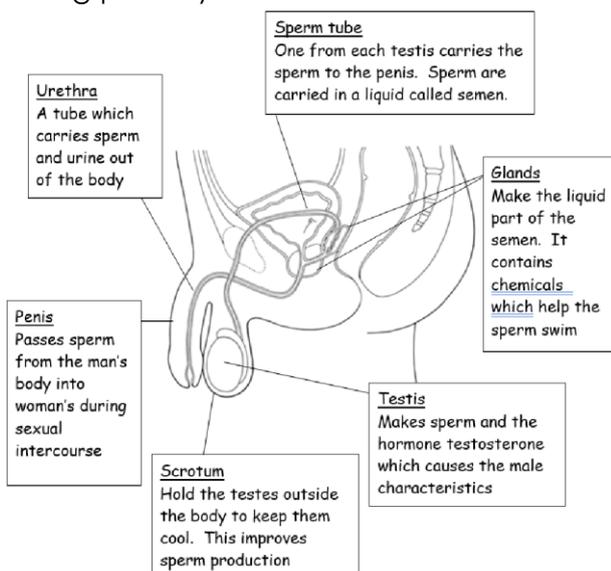
1. Cells and organisms reproduce to make new cells or organisms.
2. Reproduction can be sexual or asexual.
3. **Asexual reproduction** is when an organism makes an exact copy of itself to make a new individual.
4. Examples of organisms that reproduce asexually include: unicellular organisms, bacteria, fungi and plants.
5. **Sexual reproduction** is when sex cells (**gametes**) from two individuals fuse to form a new individual.
6. Animals and plants reproduce sexually.
7. The male gametes in animals are **sperm** cells.
8. The female gametes in animals are **egg** cells.

## Puberty

9. The body goes through changes during **puberty** or adolescence (e.g. body and pubic hair grow).
10. This prepares the body for sexual maturity and the production of gametes.
11. These changes are controlled by sex **hormones**.
12. A hormone is a chemical messenger transported in the blood.

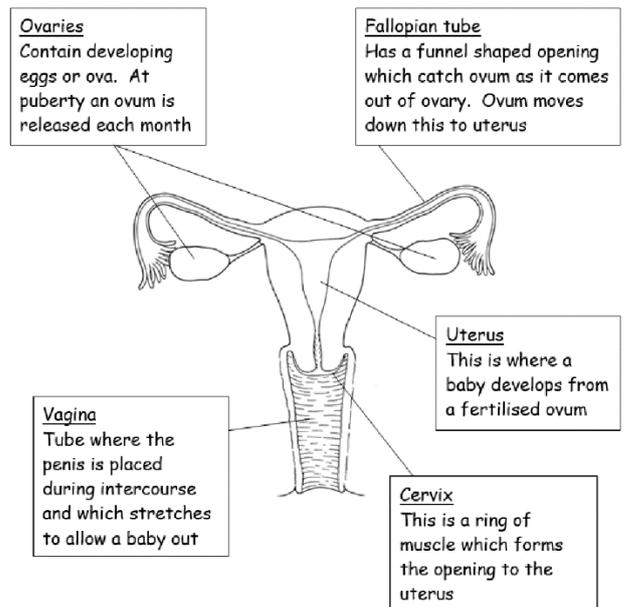
## Male Reproductive System

13. The male reproductive system develops during puberty.



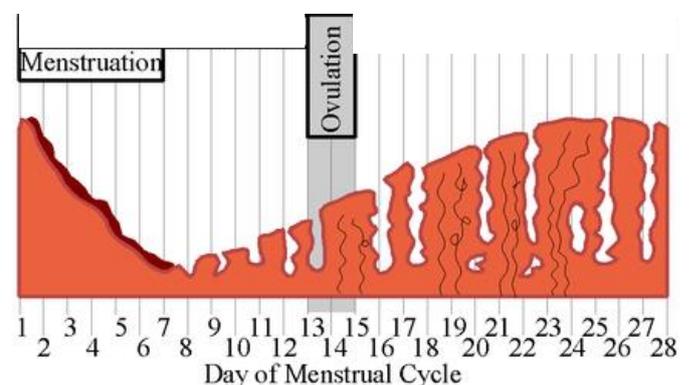
## Female Reproductive System

14. The female reproductive system develops during puberty



## Menstrual Cycle

15. The female reproductive cycle is called the **menstrual cycle**.
16. The menstrual cycle prepares a woman's body for pregnancy.
17. The menstrual cycle is controlled by sex hormones.
18. On average, one menstrual cycle lasts 28 days.
19. **Ovulation** is when the egg is release.
20. Ovulation occurs on day 14.
21. The uterus lining builds up to allow the embryo to develop.
22. If fertilisation does not take place then the uterus lining is shed between days 1-5. This is called **menstruation**.



## Fertilisation and Gestation

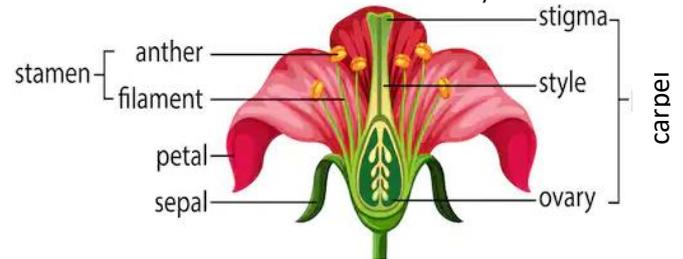
23. **Fertilisation** is when the gametes meet and the nuclei fuse to make a new cell.
24. After fertilisation, the cell multiplies to make an **embryo**.
25. **Implantation** is when the embryo embeds into the uterus wall.
26. After implantation, the embryo grows and develops into a **foetus** until it is ready to be born. This is called **gestation**.



27. The **amniotic sac** contains fluid which protects the foetus from knocks and bumps.
28. The **placenta** is where the exchange of substances between the mother and embryo occurs.
29. The **umbilical cord** connects the foetus to the placenta.

## Sexual Reproduction in Plants

30. The male gamete is the **pollen** grain.
31. Pollen is produced by the **anther**.
32. The female gamete is the **egg** found in the **ovule**. The ovule is in the ovary.



33. **Pollination** is the transfer of pollen from the anther of one plant to the stigma of another plant.
34. Pollination can be carried out by insects, animals or the wind.
35. Fertilisation is when the pollen and egg join and their nuclei fuse. Fertilisation happens in the **ovule**.
36. After fertilisation, the ovary develops into the fruit and the ovule develops into the seed.
37. The seed contains the embryo which will grow into a new plant. The process of a plant growing from a seed is called **germination**.
38. Germination requires water, oxygen and warmth.
39. **Seed dispersal** is needed so that the new plant grows far away from the parent plant so they don't compete for water and light.
40. Seeds are dispersed by:
  - Animals externally (stuck to fur)
  - Animals internally (eaten)
  - Wind and explosion
  - Water

## Day One

Test yourself on the week's questions by:

1. Study the knowledge organiser for your set topic.
2. Write the answer to each question in Copy column (you can do this in your workbook).
3. Check your answers using the knowledge organiser. Tick if correct, and add any missing information in red pen.
4. Cover the answers in Copy column and answer the question from memory in the Cover, Check column.
5. Uncover the answers and mark the Cover, Check column with a red pen. Tick if correct, and add any missing information.

	Question	Copy, Cover	Check
	<b>1. What is sexual reproduction?</b>		
	<b>2. What is Asexual reproduction?</b>		
	<b>3. What is a hormone?</b>		
	<b>4. What does the term fertilisation mean?</b>		
	<b>5. What does the term ovulation mean?</b>		
	<b>6. What does the term pollination mean?</b>		
	<b>7. What does the term germination mean?</b>		

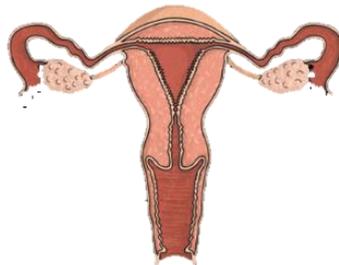
## Day Two

Answer the following 3 questions in your workbook in full sentences.

1. Complete the table by placing the name of the organs from the diagram in the correct row. Use the key terms below to help, the first has been done for you:

**Key Terms:** Ovaries, Cervix, Fallopian Tube, Uterus, Vagina,

Name of organ	Organ function
<b>Fallopian Tube</b>	The egg travels to the uterus in this
	Sperm enter the female body through here
	Every month a woman makes an egg in one of these
	In a pregnant woman the foetus grows here
	The ring of muscle at the opening to the uterus

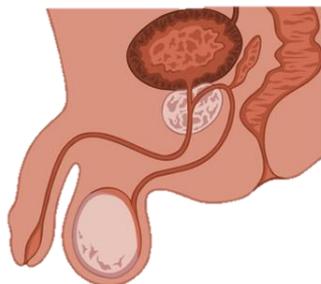


**Female Reproductive System**

2. Complete the table by placing the name of the organs from the diagram in the correct row. Use the key terms below to help, the first has been done for you:

**Key Terms:** Sperm Tube, Penis, Scrotum, Testes, Glands

Name of organ	Organ function
<b>Glands</b>	These add liquids to the sperm
	Sperm are made here
	This holds the testes outside the body
	The sperm leave the body through this
	Sperm travel from the testes to the penis in this



**Male Reproductive System**

## Day Three

For each of the seeds shown state its mechanism for seed dispersal and describe the adaptations that are suited to the mechanism

**Key words to help:**

**Seed dispersal mechanisms:** animal, water, wind

**Adaptations:** hooks, wings, hollow, light, fruit, bright colour, waterproof case

Name of plant	Diagram of seed	Seed dispersal mechanism	Adaptations
Blackberry			
Burdock			
Sycamore			
Coconut			

### **STRETCH QUESTIONS:**

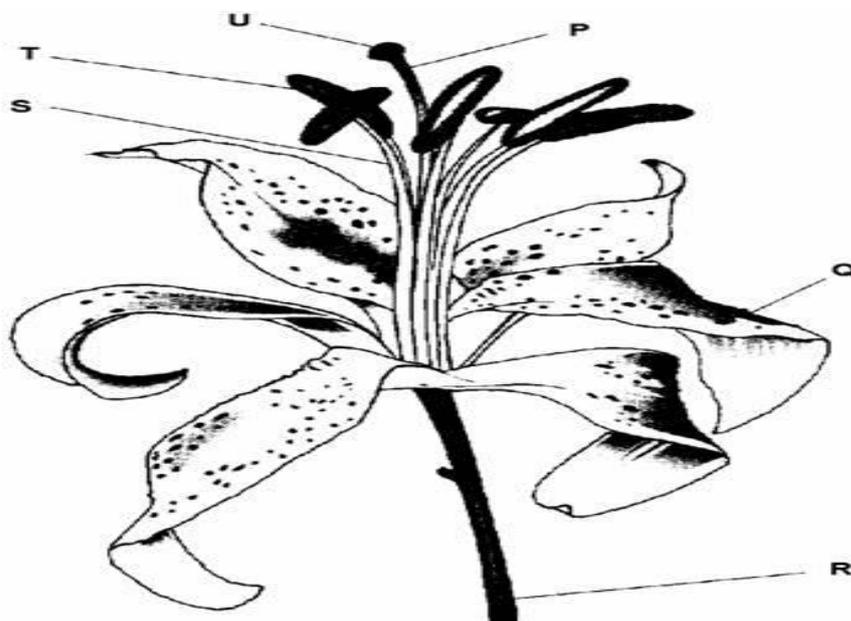
Questions to answer in your books:

1. Describe what 'dispersal' means.  
*Dispersal is...*
2. Explain why seeds must be dispersed.  
*Seed dispersal is needed so that...*

**Day Four** (answers available for this question at the end of the booklet)

Question 1)

The drawing shows a flower. Six parts are labelled P, Q, R, S, T and U.



The names of three of these parts are given in the table. Write the letter of each part next to its name in the table.

name of part	letter of part
anther	T
style	
stigma	

Which **two** letters on the drawing show parts of the stamen?

..... and .....

Question 2)

This question is about the menstrual cycle. Choose words from the list to complete the sentences.

**a daily      the uterus      the middle      an ovary      a weekly**

**the beginning      ~~a monthly~~      the end      the vagina**

Menstruation is part of ..... *a monthly* ..... cycle.

The cycle begins when the lining of ..... breaks away.

An ovum (egg) is released from ..... at about ..... of each cycle.

## Day Five – STRETCH TASK:

Read the news article and then answer the questions underneath.

# Trees on the edge

Serious drought is a threat to most trees, worldwide survey finds

BY STEPHEN ORNES,



Trees often grow to appear sturdy and strong, which might make it hard to believe that they're easily harmed on the inside. But that is the case, according to a worldwide survey of more than 200 types of trees, published in November. Researchers studied the inner plumbing of the trees and found that most don't have a built-in safety net that would allow them to survive a serious drought.

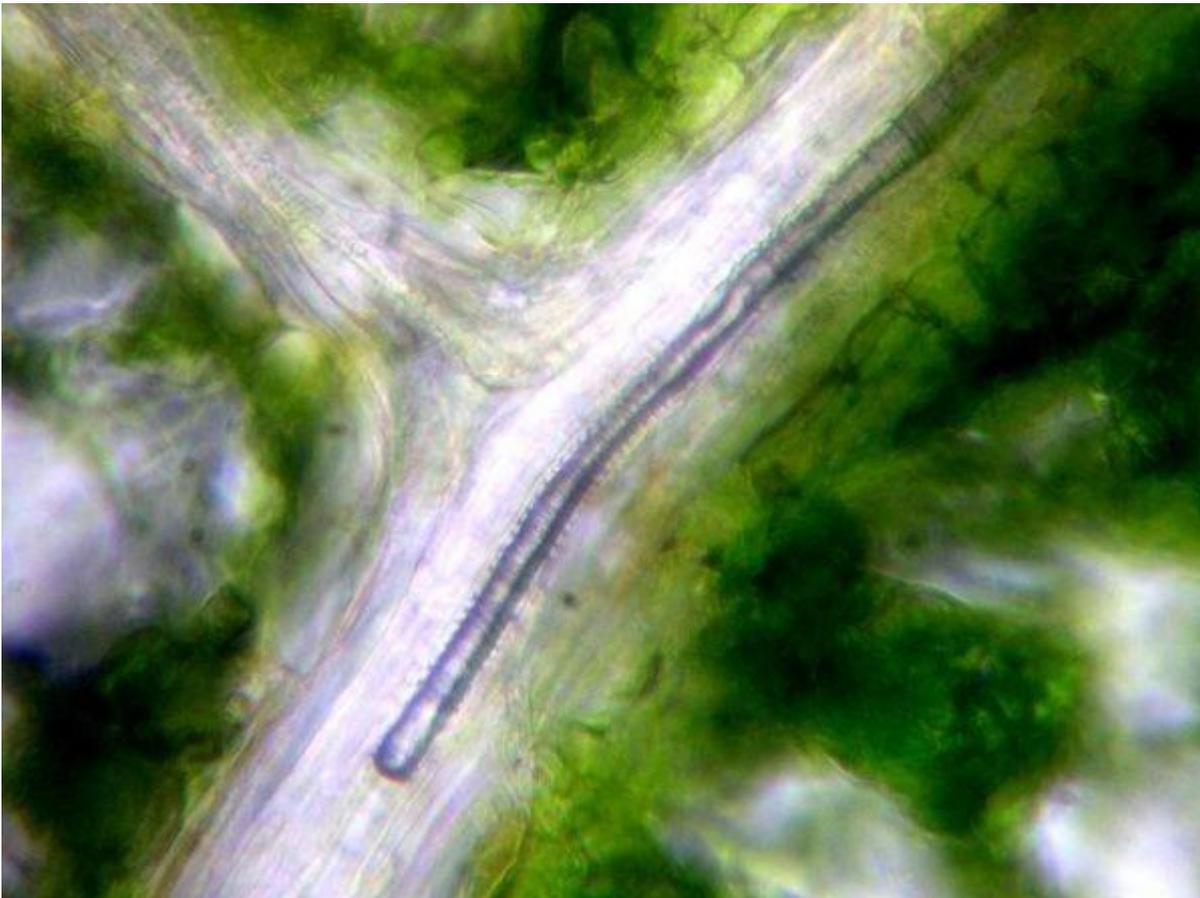
"I think this is a really big deal," ecologist David Breshears told *Science News*. Breshears, of the University of Arizona in Tucson, did not work on the new study. He says it and other studies "keep pointing to: 'Whoa, our forests are really vulnerable.'"

Studies like this one are particularly worrisome in light of **climate change**. The average temperature of the planet is rising. Scientists predict that warming will

cause changes in rainfall patterns. That could lead to longer, more severe droughts in many regions around the world. As a result, the trees that now grow there could face a serious threat, the study's scientists say.

When drought strikes, trees begin to fail in the **xylem**, special tissue made of many microscopic, straw-like tubes. This tissue makes it possible for a plant to slurp water from the ground and deliver it to the leaves. During times of drought, tiny air bubbles can develop in the tubes. Too many bubbles block the flow of water — and spell certain death for the tree.

Brendan Choat, a plant physiologist at the University of Western Sydney in Richmond, Australia, worked on the new study along with 23 other researchers. (Plant physiologists study how the different parts of a plant work to help keep it alive.) All together, the scientists studied 226 tree **species** in 81 different sites around the world.



Choat told *Science News* that this study is the first to look at all forest types and find so many species living on the edge.

Of the 226 different types of trees Choat and his collaborators studied, 70 percent lived close to the point where a serious drought would halt water transport. Trees that flower, such as maples and oaks, were more vulnerable than **conifers**. These hardier trees, which include pines and firs, typically form cones and have evergreen, needlelike leaves.

Plant ecologist Bettina Engelbrecht of the University of Bayreuth in Germany, who did not work on the new study, told *Science News* that in the interest of conservation, scientists can't just concentrate on a few species. "We have to worry about them all."

**Answer the following questions in full sentences:**

1. What is this news story about?

*The news story is about...*

2. Describe how times of drought can affect xylem.

*Times of drought can affect xylem because...*

**[Hint: what is the function of the xylem in trees? How would drought affect this function?]**

3. How many trees were studied?

*Scientists studied \_\_\_\_\_ species of trees.*

4. Write down the meanings of the words from the article.

- **Climate Change**
- **Xylem**
- **Species**
- **Conifers**



## Day 4 Answers

(1)

name of part	letter of part
<i>anther</i>	<b>T</b>
<i>style</i>	P
<i>stigma</i>	U

T and S

*letters may be in either order*

***both*** letters are required for the mark

- (2)
- a monthly
  - the uterus
  
  - an ovary
  
  - the middle