a

Write a definition for each type of disease and give two examples.

communicable disease:

_____

_____

_____

_____

non-communicable disease:

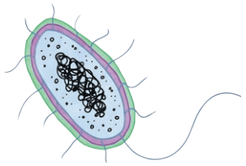
_____

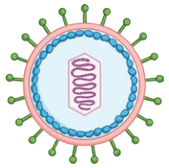
_____

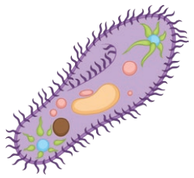
_____

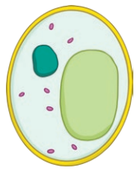
b

Label the pathogens below that cause infectious diseases.









c

Name three ways that pathogens are spread and give at least one example.

_____

_____

_____

d

How do pathogens cause disease? Fill in the gaps.

_____ reproduce rapidly by _____. They may produce _____ that damage tissues and make us feel ill.

_____ take over the cells of your body. They live and rapidly _____ inside, this causes cell damage.

e

Simple hygiene measures are one of the most effective ways of preventing the spread of pathogens. List 5 ways we can be more hygienic below:

_____

_____

_____

_____

_____

f

List three other methods for preventing the spread of pathogens.

_____

_____

_____

g

Salmonella

What type of pathogen is it caused by?

_____

What are the symptoms?

_____

How is it spread?

_____

What can we do about it?

_____

h

Measles

What type of pathogen is it caused by?

_____

What are the symptoms?

_____

How is it spread?

_____

What can we do about it?

_____

i

Tobacco Mosaic Virus

What type of pathogen is it caused by?

_____

What are the symptoms?

_____

How is it spread?

_____

What can we do about it?

_____

j

Explain how your skin prevents microorganisms getting into your body.

_____

_____

_____

_____

_____

_____

k

Gonorrhoea

What type of pathogen is it caused by?

_____

What are the symptoms?

_____

How is it spread?

_____

What can we do about it?

_____

l

HIV

What type of pathogen is it caused by?

_____

What are the symptoms?

_____

How is it spread?

_____

What can we do about it?

_____

m

Explain how the respiratory system is adapted to reduce the entry of microorganisms.

_____

_____

_____

_____

_____

_____

n

Malaria

What type of pathogen is it caused by?

What are the symptoms?

How is it spread?

What can we do about it?

o

Rose Black Spot

What type of pathogen is it caused by?

What are the symptoms?

How is it spread?

What can we do about it?

p

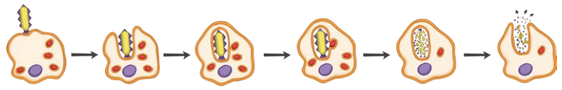
Describe how vaccinations prevent illness.

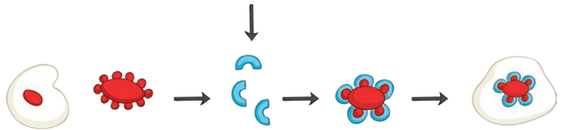
q

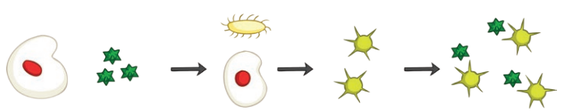
Explain how the digestive system is adapted to reduce the entry of microorganisms.

r

Describe each role of a white blood cell and explain how it protects you against disease.







s

Tick the correct boxes.

	Treat Symptoms	Kills Bacteria	Kills Viruses
painkillers			
antibiotics			

t

Define the following terms:

vaccine:

antigen:

antibody:

herd immunity:

u

Fill in the missing words:

The use of _____ has greatly reduced the deaths from infectious _____ diseases. However the evolution of strains that are _____ to antibiotics is a concern.

_____ are specific which means they _____.

v

State where the following drugs were discovered.

The heart drug digitalis: _____

The painkiller aspirin: _____

The antibiotic penicillin: _____

Who discovered penicillin? _____

Why is it difficult to discover new medicines?

w

Where do most new drugs now come from?

What has to happen before a drug can be used?

x

Describe each process of drug testing.

preclinical testing:

clinical trials:

double-blind trials:

a

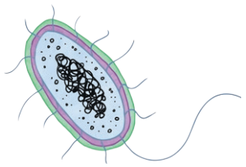
Write a definition for each type of disease and give two examples.

communicable disease:
Caused by pathogens and can be passed from one person to another. Possible examples: measles, salmonella, gonorrhoea, HIV, tobacco mosaic virus, rose black spot, malaria.

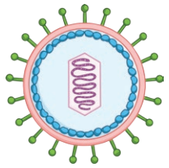
non-communicable disease:
Can not be passed on from one person to another. Possible examples: heart disease, diabetes, cancer.

b

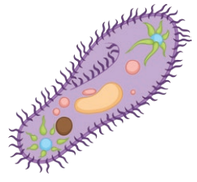
Label the pathogens below that cause infectious diseases.



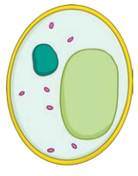
bacteria



virus



protist



fungi

c

Name three ways that pathogens are spread and give at least one example.

By air: cold, flu, tuberculosis.

By direct contact: malaria, STDs, HIV.

By water: cholera, salmonellosis.

d

How do pathogens cause disease? Fill in the gaps.

Bacteria reproduce rapidly by **binary fission**. They may produce **toxins** that damage tissues and make us feel ill.

Viruses take over the cells of your body. They live and rapidly **reproduce** inside, this causes cell damage.

e

Simple hygiene measures are one of the most effective ways of preventing the spread of pathogens. List 5 ways we can be more hygienic below:

- **Washing hands after using the toilet, before cooking or eating, and after contact with animals or sick people.**
- **Using disinfectants on surfaces.**
- **Keeping raw meat away from food that is eaten uncooked.**
- **Coughing or sneezing into a tissue.**
- **Keeping agricultural machinery, and people using it, clean to prevent the spread of plant diseases.**

f

List three other methods for preventing the spread of pathogens.

1. Keep infected individuals in isolation.

2. Destroy the vectors that carry pathogens.

3. vaccination

g

Salmonella
What type of pathogen is it caused by?
bacteria
What are the symptoms?
Fever, abdominal cramps, vomiting and diarrhoea.
How is it spread?
Eating undercooked food or food contaminated from contact with raw meat, e.g. raw chicken.
What can we do about it?
Poultry are vaccinated to control the spread.

h

Measles
What type of pathogen is it caused by?
virus
What are the symptoms?
A fever and red rash on the skin. Can be fatal if there are complications.
How is it spread?
By air - the inhalation of droplets from coughs and sneezes.
What can we do about it?
There is no treatment, so young children are vaccinated against it.

i

Tobacco Mosaic Virus
What type of pathogen is it caused by?
virus
What are the symptoms?
Mosaic discolouration of the leaves which reduces photosynthesis and affects the growth of the plant.
How is it spread?
Direct contact between diseased plant material and healthy plants. Insects can also act as vectors.
What can we do about it?
TMV resistant strains. Good hygiene and pest control.

j

Explain how your skin prevents microorganisms getting into your body.

It acts as a barrier to prevent pathogens reaching the tissues beneath. Platelets quickly form scabs to seal any cuts.

It produces antimicrobial secretions to kill pathogens.

It is covered with microorganisms that act as an extra barrier to entry.

k

Gonorrhoea
What type of pathogen is it caused by?
bacteria
What are the symptoms?
Thick yellow or green discharge from the vagina or penis and pain on urinating.
How is it spread?
Sexual contact
What can we do about it?
Treat with antibiotics. Use a barrier method of contraception.

l

HIV
What type of pathogen is it caused by?
virus
What are the symptoms?
Initially causes a flu-like illness. Damages the immune system so that it can't deal with other infections or cancers.
How is it spread?
Sexual contact or exchange of bodily fluids, such as blood.
What can we do about it?
Antiretroviral drugs help to stop the virus attacking the immune system. There is no cure or vaccine.

m

Explain how the respiratory system is adapted to reduce the entry of microorganisms.

The lining of the nose produces mucus and is full of hairs to trap particles in the air that may contain pathogens.

The lining of the trachea and bronchi produce mucus which is moved to the back of the throat by the cilia projections of epithelial cells.

n

Malaria

What type of pathogen is it caused by?

protist

What are the symptoms?

Recurrent fever. Can be fatal.

How is it spread?

Mosquitos act as a vector, passing the protist to the human bloodstream when they feed on the blood.

What can we do about it?

Preventing the vectors (mosquitos) from breeding.Using mosquito nets and repellents to avoid being bitten. Taking antimalarial drugs.

o

Rose Black Spot

What type of pathogen is it caused by?

fungus

What are the symptoms?

Purple or black spots develop on the leaves. Leaves turn yellow and fall of prematurely which reduces photosynthesis, affecting the growth of the plant.

How is it spread?

Spores are carried by water or wind.

What can we do about it?

Use fungicides to treat the plant.

Remove and destroy affected leaves.

p

Describe how vaccinations prevent illness.

1. **Introduce small quantities of dead or inactive virus;**
2. **this stimulates white blood cells to produce antibodies;**
3. **if the live pathogen enters the body, the white blood cells recognise it and respond quickly so you don't get ill.**

q

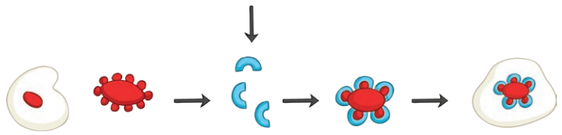
Explain how the digestive system is adapted to reduce the entry of microorganisms.

The stomach produces hydrochloric acid that destroys pathogens.

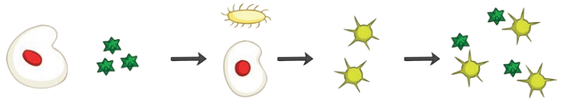
r

Describe each role of a white blood cell and explain how it protects you against disease.

Some white blood cells ingest pathogens, digesting and destroying them.



Some white blood cells produce antibodies which are chemicals that target specific pathogens and destroy them. An antibody only works for one type of pathogen.



Some white blood cells produce antitoxins that counteract the toxins released by pathogens.

s

Tick the correct boxes.

	Treat Symptoms	Kills Bacteria	Kills Viruses
painkillers	X		
antibiotics		X	

t

Define the following terms:

vaccine:

Dead or inactivated form of a disease causing microorganism.

antigen:

Unique protein on the surface of cells.

antibody:

Produced by white blood cells to recognise specific antigens.

herd immunity:

When vaccination of a significant proportion of the population provides protection for individuals who haven't got immunity.

u

Fill in the missing words:

The use of **antibiotics** has greatly reduced the deaths from infectious **bacterial** diseases. However the evolution of strains that are **resistant** to antibiotics is a concern.

Antibiotics are specific which means they **only work against certain bacteria**.

v

State where the following drugs were discovered.

The heart drug digitalis: **foxglove**

The painkiller aspirin: **willow**

The antibiotic penicillin: ***Penicillium* mould**

Who discovered penicillin? **Alexander Fleming**

Why is it difficult to discover new medicines?

You need to find a chemical that kills bacteria without damaging human cells.

w

Where do most new drugs now come from?

Synthesised by chemists in a lab, but they might still start from a chemical extracted from a plant.

What has to happen before a drug can be used?

1. **Test whether the drug is effective against the disease.**
2. **Check that the drug is not toxic.**
3. **Work out what dose to use.**

x

Describe each process of drug testing.

preclinical testing: **This happens in a laboratory using cells, tissues and animals.**

clinical trials: **To use healthy volunteers and patients. Starting off with very low doses to check for side effects. If it is safe it is tested on patients.**

double-blind trials: **These tell you how effective a medicine is. Neither the patient or the doctor know whether the patient has been given a placebo or the real drug.**