Name: Sha

01.1
Organ

01.2
Palisade mesophyll → Contains the most chloroplasts
Spongy mesophyll → Contains many air spaces

01.3
Transpiration

01.4
Lignin

01.5
It's transparent so the light can get through to the palisade cells below. The palisade cells need light for photosynthesis.

01.6
stomata, guard cells

01.7
Vacuole

01.8
Active transport

01.9
Mitochondria

02.1
It acts as a barrier to stop pathogens getting into the body.

02.2
63/210 which simplifies to 3/10.

02.3
Killed at pH1 = 210 - 23 = 187
Killed at pH5 = 216 - 185 = 31
Difference = 187 - 31 = 155

02.4
They found the middle number (midpoint) between the result for pH1 (23) and pH3 (63).
(23+63)/2 = 43.

03.1
Platelets → Help clot the blood where the vaccine was injected
White blood cells → Produce antibodies to the measles virus

03.2
1968

03.3
From 1945 it went up a lot and then started to decrease after about 1968.

03.4
It decreased.

03.5
Parents were worried their children would get condition X.

03.6
Have the research peer reviewed.

03.7
Because the author was paid, so he was biased.

04.1

- **Starch:** Add some iodine solution. If starch is there it will turn blue-black. If not, it stays brown/yellow.
- **Sugar:** Add Benedict's solution. If sugar is there it will turn from blue to green or orange or red. If not, it stays blue.

04.2
amylase, sugar

04.3
The type of bread

04.4

1. White bread is broken down the fastest.

2. Wholemeal bread takes the longest to break down.

04.5
They repeated the experiment three times for each bread and then worked out the mean.

04.6
X = (58 + 55 + 61) / 3 = 174 / 3 = 58 seconds

04.7
Each person's sense of taste is different.

05.1
Ionising radiation, Viruses

05.2
Mitosis

05.3
grow, replicate

05.4
40%

05.5
Chromosomes are pulled to each end of the cell.

05.6
Cell membrane

05.7
Real width = 50mm / 800 = 0.0625 mm.
Then 0.0625 x 1000 = 62.5 μm.

05.8
cells, people

05.9
A placebo.

06.1
One control variable was the size of the potato pieces.

06.2
You should pat it dry with a paper towel to get the water off the outside.

06.3
A balance / weighing scale.

06.4
0.1 g

06.5
D

06.6
Change = -1.1g. Start = 6.0g.
So (1.1 / 6.0) x 100 = 18.333... = 18.3 %

06.7
Line graph

06.8
water, osmosis, partially permeable

06.9
About 0.2 mol/dm^3.

07.1
Arteries

07.2
Pushing on the chest acts like the heart beating. It pumps the blood around the body to get oxygen to the cells.

07.3
It puts oxygen into their lungs so it can get into their blood.

07.4
Statins

07.5
A stent is a tube that is put inside the blocked artery. It holds the artery open so more blood can flow through to the heart muscle.

07.6
Smoking increases your risk of getting disease H more than any other disease.

07.7
(Student would draw the following on the graph paper)

- Y-axis label: % increase in risk
- Y-axis scale: 0, 10, 20, 30, 40, 50, 60, 70, 80
- Bar for F drawn up to the line for 20.
- Bar for G drawn up to the line for 29 (just below 30).
- Bar for H drawn up to the line for 70.
- Labels F, G, H under the new bars.

07.8
Having a diet that's high in saturated fat.

08.1
In the nucleus.

08.2
A, D and E

08.3
A person with CF has trouble digesting food because their pancreas doesn't release enough enzymes. This means less lipase is made, so fats aren't broken down into fatty acids and glycerol. Also, less amylase and protease means starch and protein don't get digested properly either.

Because the food isn't broken down into small molecules, it can't be absorbed properly into the blood from the small intestine. This means the person doesn't get enough nutrients like glucose and amino acids. Without these building blocks, they can't build new tissues or store fat, so they have difficulty gaining body mass. They also get less glucose for respiration, so have less energy for growth.

08.4

1. They have a huge surface area.
2. The walls are really thin, only one cell thick.
3. They have a good blood supply with lots of capillaries.

08.5
If there's less oxygen in the blood, the body can't do as much aerobic respiration. This means less energy is released in the cells. This would make the person feel tired and their muscles wouldn't work as well. Their body might try to do more anaerobic respiration instead.