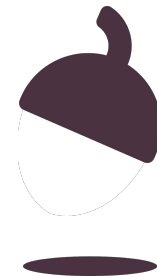


Combined Science HT - Biology - KS4
Homeostasis and Response

Controlling blood sugar levels - Higher

Miss Ray



OAK
NATIONAL
ACADEMY

Put the steps into the correct order

- Pancreas releases insulin
- Glucose is converted to glycogen and stored in the liver
- Blood glucose levels rise
- Eat a meal
- Blood glucose levels return to normal



Put the steps into the correct order

- Eat a meal
- Blood glucose levels rise
- Pancreas releases insulin
- Glucose is converted to glycogen and stored in the liver
- Blood glucose levels return to normal



Exam style question

Suggest why insulin levels remain low overnight. [2]

Hint

- When is insulin secreted?



Answers - Exam style question

Suggest why insulin levels remain low overnight. [2]

Hint

- When is insulin secreted?

The pancreas releases insulin into the blood when blood glucose levels increase.

When we are sleeping, we are not eating. Blood glucose can only rise if we eat or drink something containing sugar.



Exam style question

Miss Ray ate a large bar of chocolate, her insulin levels increased; explain why. [2]



Answers - Exam style question

Miss Ray ate a large bar of chocolate, her insulin levels increased; explain why. [2]

When blood glucose levels increase, this is detected by glucose receptors in the pancreas.

The pancreas releases insulin into the blood to return the blood glucose levels to normal.



Complete the table

Blood glucose levels	Pancreas	Liver
Too high	Releases _____	Converts glucose into _____
Normal	Stops releasing _____	Stops converting glucose into _____



Blood glucose levels	Pancreas	Liver
Too high	Releases <u>insulin</u>	Converts glucose into <u>glycogen</u>
Normal	Stops releasing <u>insulin</u>	Stops converting glucose into <u>glycogen</u>



Exam style question

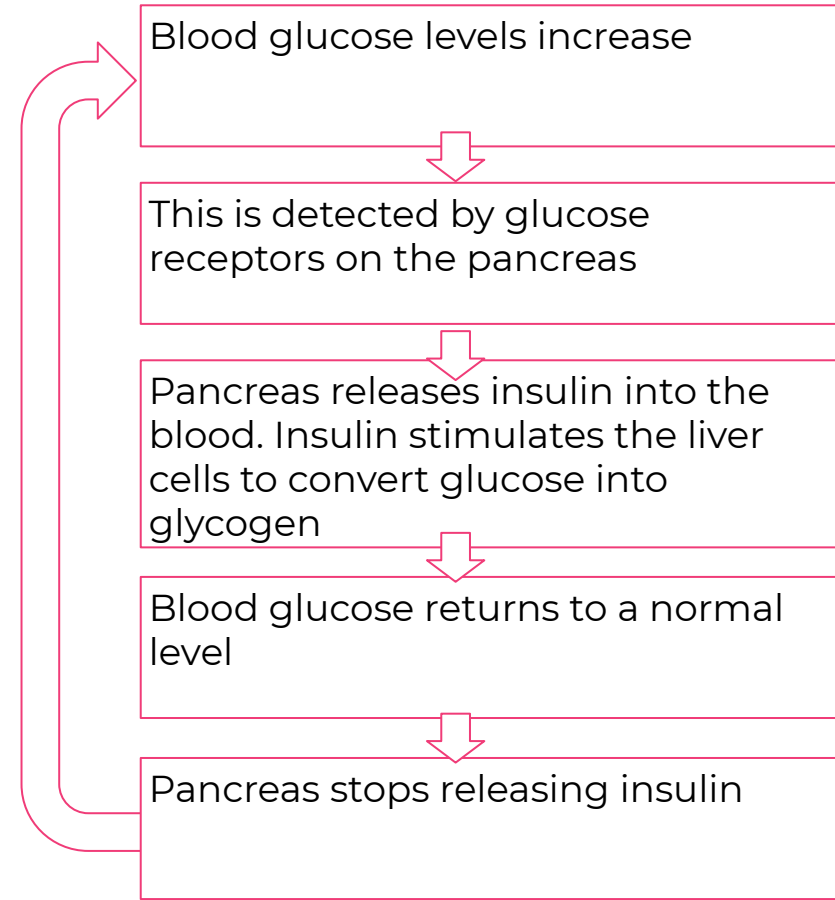
Describe how the body uses insulin to control blood sugar levels. [4]

When blood glucose levels _____, this is detected by glucose _____ in the pancreas.

The _____ releases insulin into the blood.

The insulin stimulates the _____ cells to convert glucose into _____.

When blood glucose levels return to normal the pancreas stops releasing _____.



Exam style question

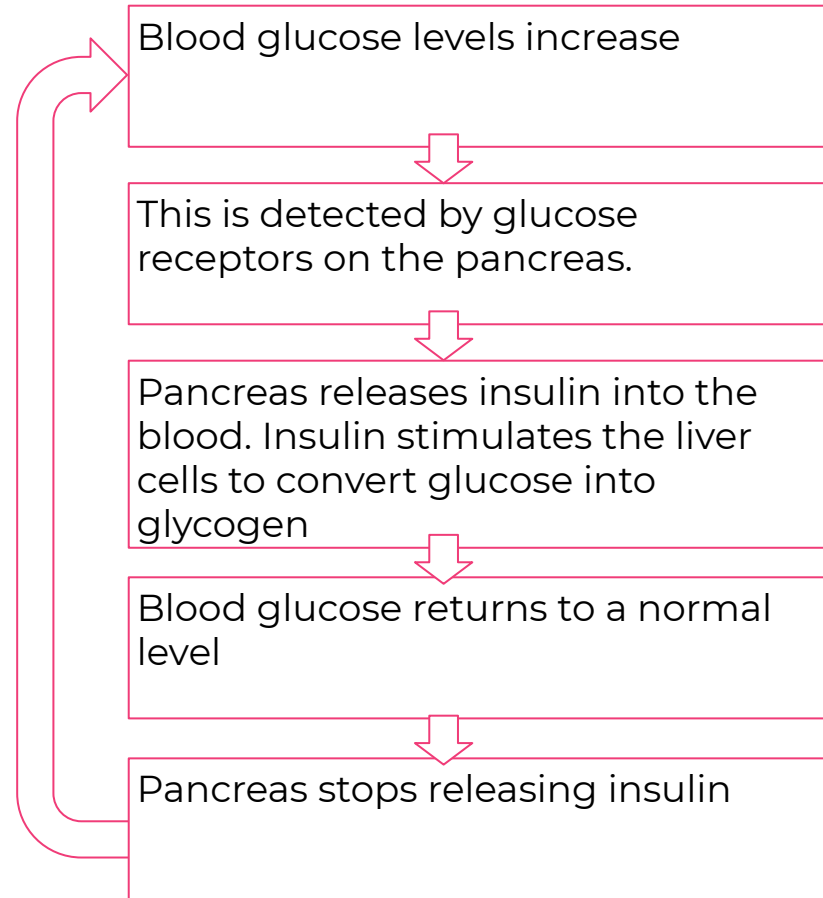
Describe how the body uses insulin to control blood sugar levels. [4]

When blood glucose levels increase, this is detected by glucose receptors in the pancreas.

The pancreas releases insulin into the blood.

The insulin stimulates the liver cells to convert glucose into glycogen.

When blood glucose levels return to normal the pancreas stops releasing insulin.





Receptors on the pancreas detect this change and it releases _____.



Liver cells convert glucose into _____.



Blood glucose levels reduce. Insulin secretion stops.



Normal blood glucose levels



Blood glucose levels increase. _____ secretion stops.



_____ cells convert glycogen into _____.



Receptors on the pancreas detect this change and it releases _____.

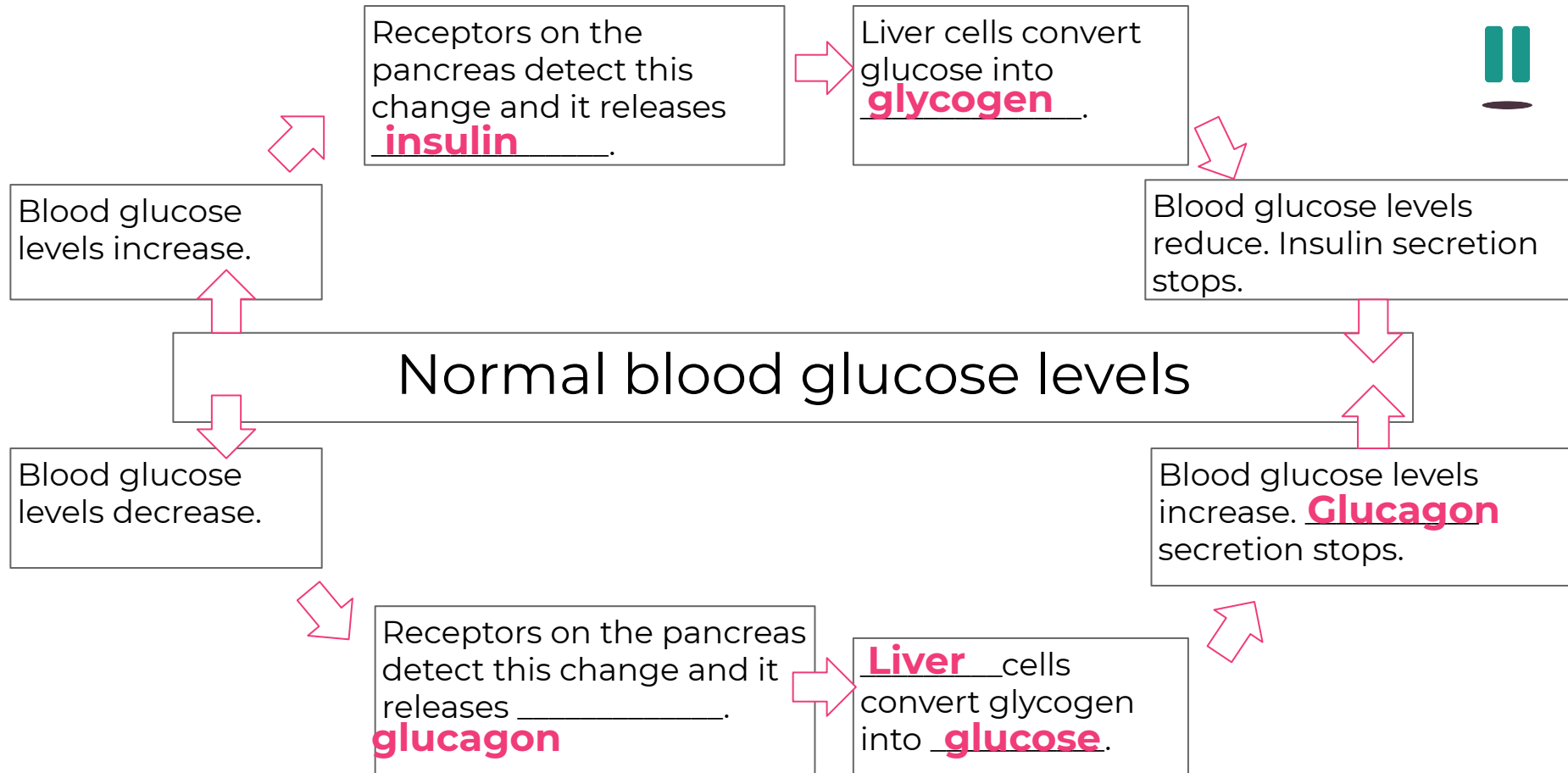


Blood glucose levels decrease.



Blood glucose levels increase.





Complete the last row of the table

Blood glucose levels	Pancreas	Liver
Too high	Releases insulin	Converts glucose into glycogen
Normal	Stops releasing insulin	Stops converting glucose into glycogen
Too low		



Answers

Blood glucose levels	Pancreas	Liver
Too high	Releases insulin	Converts glucose into glycogen
Normal	Stops releasing insulin	Stops converting glucose into glycogen
Too low	Releases glucagon	Converts glycogen into glucose

