February 5th MCM #5

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February 6th TT #5

3.5.A1 Describe the application of DNA profiling in forensic investigations. [6]

A. Suspect sample of DNA / blood / saliva / semen is obtained;
B. Repetitive sequences used for profiling;
C. Crime scene samples of DNA are obtained;
D. PCR used to amplify / produce more copies of the DNA;
E. DNA broken into fragments by restriction enzymes;
F. DNA fragments are separated by gel electrophoresis;
G. separation according to the length of the fragments;
H. pattern of bands obtained / different pattern of bands with DNA from different individuals;
I. Bands compared between different DNA samples;
J. If pattern of bands is the same then DNA is (almost certainly) from same source;

February 7th WW #5

9.4 Describe the metabolic events of germination in a starchy seed. [5]

A. Absorption of water / imbibition;
B. (Embryo) increases cellular respiration;
C. (Embryo) secretes gibberellin / GA;
D. (Gibberellin / GA stimulates) production of amylase;
E. Digestion of starch to smaller sugars / maltose;
F. Transport of foods / nutrients to embryo;
G. Embryo begins mitosis;

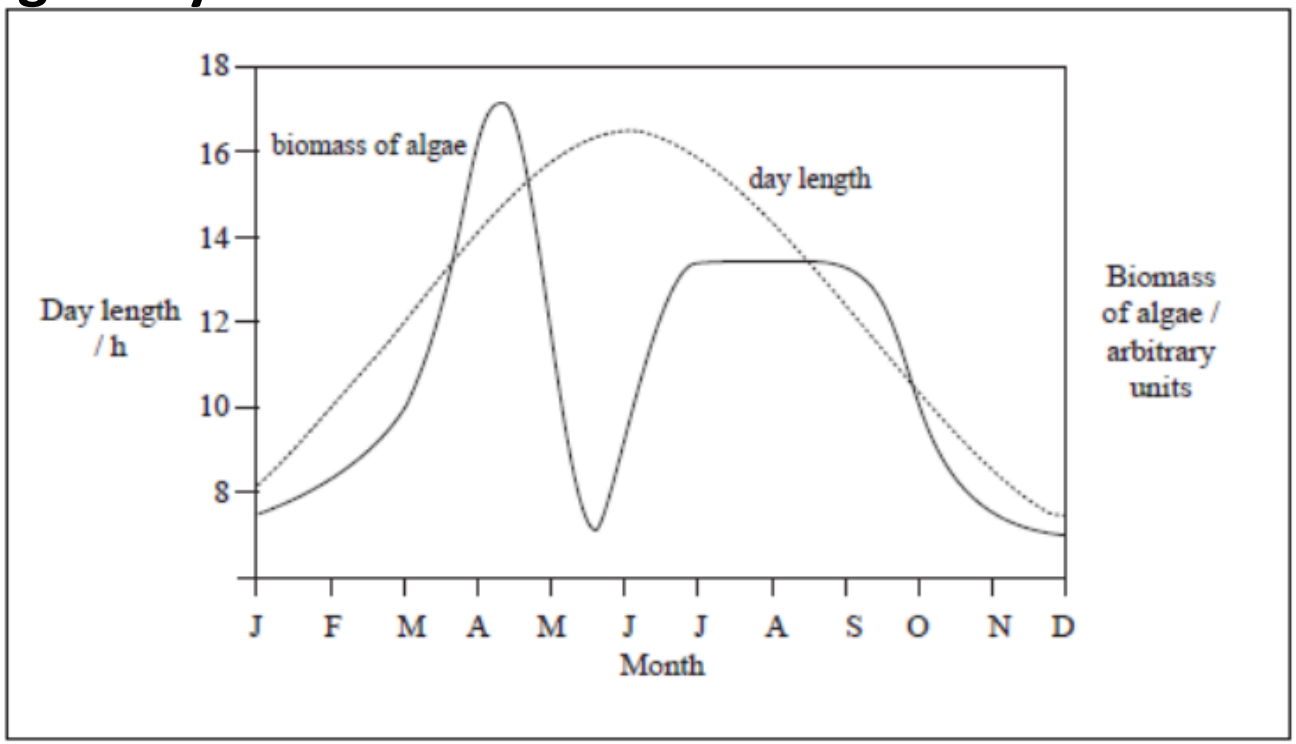
February 8th TTh #5

2.5.U1 Outline enzyme-substrate specificity. [5]

A. Active site of enzyme binds to specific substrate;
B. Shape of the active site and substrate fit / complement each other;
C. Lock and key model;
D. Chemical properties of substrate and enzyme attract / opposite charges;
E. Enzyme / active site is not rigid and substrate can induce slight changes in shape;
F. Allows substrates of similar structure to bind with same enzyme;
G. Induced fit;
H. Causes weakening of bonds in substrate to lower activation energy;

February 9th FF #5

Graphing Analysis



a) Identify the month during which the quantity of food is at a maximum. [2]

b) Compare the changes in biomass of algae with the changes in day length from January to June. [3]

a) April
b) Max 3
   A. The biomass of algae levels vary more than the changes in day length;
   B. The biomass of algae peaks before the day length peaks;
   C. From January to April day length increases linearly while biomass of algae increase exponentially;
   D. From January to April there is a positive correlation between the biomass of algae and the day length;
   E. From late April until late May the biomass of algae drops off, while day length continues to increase.

February 13th TT #6

11.2 Describe the roles of nerves, muscles and bones in producing movement. [6]

A. Motor neurones carry impulses / messages to muscle;
B. Nerves / neurones stimulate muscles to contract;
C. Neurones control the timing of muscle contraction;
D. Muscles provide the force for / cause movement;
E. Muscles are attached to bone by tendons;
F. Bones act as levers;
G. Joints between bones control the range of movement;
H. Antagonistic muscles cause opposite movements;

February 14th WW #6

6.2.U11 Outline the control of the heartbeat. [6]

A. The heart is myogenic / beats on its own accord;
B. 60-80 times a minute (at rest);
C. Coordination of heartbeat is under the control of pacemaker;
D. Located in the muscle / walls;
E. Sends out signal for contraction of heart muscle;
F. Atria contract followed by ventricular contraction;
G. Fibres / electrical impulses cause chambers to contract;
H. Nerve from brain can cause heart rate to speed up;
I. Nerve from brain can cause heart rate to slow down;
J. Adrenalin (carried by blood) speeds up heart rate;
K. Artificial pacemakers can control the heartbeat;

February 15th TTh #6

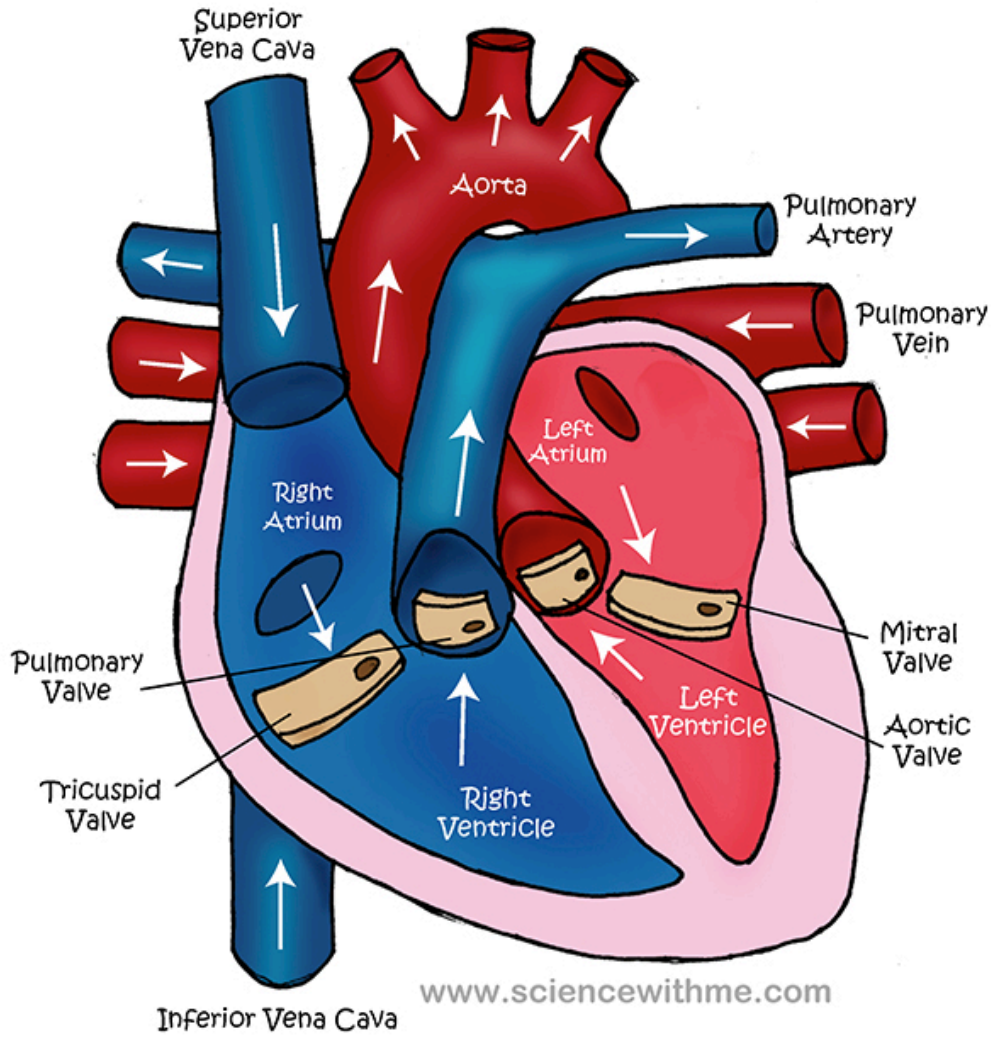
3.4.U7 Outline sex linkage. [4]

A. Gene carried on sex chromosome / X chromosome / Y chromosome;
B. Inheritance different in males than in females;
C. Males have only one X chromosome therefore, only one copy of the gene;
D. Mutation on Y chromosome can only be inherited by males;
E. Women can be carriers if only one X chromosome affected;
F. Example of sex linked characteristics (e.g. hemophilia / color blindness);
G. Example of cross involving linkage;

February 16th FF #6

6.2.S2 Draw a labelled diagram to show the internal structure of the heart. [6]

A. Left and right ventricle;
B. Left and right atria;
C. Atrioventricular valves / bicuspid / mitral and tricuspid valves;
D. Semilunar valves;
E. Aorta and vena cava;
F. Pulmonary artery and pulmonary vein;
G. Ventricle wall thicker than atria;
H. Left ventricle wall thicker than right ventricle wall;



February 20th TT #7

February 21st WW #7

February 23rd TTh #7

February 24th FF #7