January 29th MCM #4

https://goo.gl/forms/TH7ZoG28rbLho69x2

January 30th TT #4

11.4.U4 Outline the process of fertilization in humans. [5]

A. sperm enters oviduct (fallopian tube) / sperm swims towards egg / (secondary) oocyte / ovum;
B. sperm attracted to egg / sperm attach to receptors in zona pellucida / chemotaxis;
C. acrosome reaction / release of (hydrolytic) enzymes from acrosome;
D. penetration of zona pellucida / jelly coat;
E. membranes of egg and sperm fuse / sperm (head) penetrates egg membrane;
F. cortical reaction / granules released to the outside of egg;
G. zona pellucida hardens / fertilization membrane forms to prevent polyspermy;
H. nucleus of secondary oocyte completes meiosis II;
I. fusion of nuclei / (diploid) zygote forms;

January 31st WW #4

5.3.A3 Identify the animal phyla for each organism, A-E [5]

A	B	C	D	E
				

mollusca cnidaria annelida chordata arthropoda

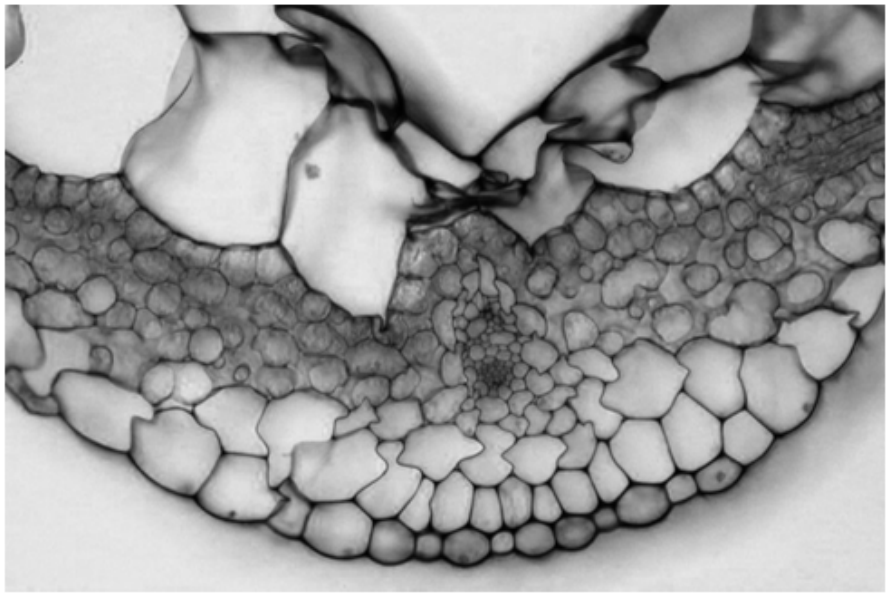
February 1st TTh #4

2.2.U2 Outline the significance to organisms of the different properties of water. [5]

A. Water is transparent / allows light to pass through for photosynthesis;
B. Cohesion of water molecules allow transport in plants;
C. Solvent – chemical reactions take place in water;
D. Many substances dissolve in water and can be transported;
E. High boiling point making liquid water available to organisms / water is liquid over a range of temperatures;
F. Water is most dense at 4°C so ice floats over water providing winter habitat;
G. High specific heat capacity so stable environment (internal / external);
H. High surface tension – supports (near) surface dwelling organisms;
I. Coolant – absorbs heat when it evaporates / changes states;

February 2nd FF #4

The micrograph below shows a thin vertical section through a *Tradescantia* leaf.



a. State two general features of the structure of complex organisms that are visible in the micrograph. [2]

b. The leaf tissue contains the enzyme Rubisco and NADP. Outline the function of Rubisco. [2]

c. Explain precisely where NADP is located in the leaf and how it is used. [4]

a. Max 2

Multicellular / made of cells

Cell specialization / differentiation / presence of tissues

b. Max 2

Carboxylation / fixes CO_2

Production of glycerate 3-phosphate (G3P)

RuBP is a substrate

b. Max 4

Chloroplast / stroma of cell

(Palisade) Mesophyll tissue of leaf

Accepts electrons / hydrogen acceptor

Transfer electrons / hydrogen ions to Calvin cycle

−or− reduces glycerate 3-phosphate (G3P)