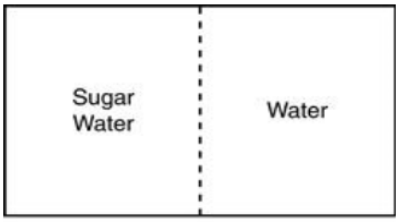
Whitehaven High – Grade Improvement Assignment – Honors Biology

Please send completed assignment to your teacher by 11:59 pm on May 11, 2020.

(Arnett: arnettm@scsk12.org White: whitek1@scsk12.org)

Student Name: _____ Date: _____

1. **A student performs a demonstration of the permeability of a cell membrane using plastic wrap.**



Selectively Permeable Membrane

This type of model was used by the student to observe all of the following EXCEPT

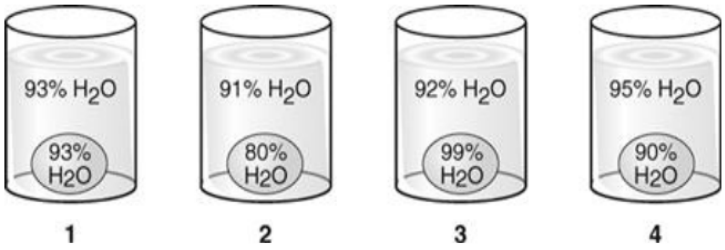
A. the direction the water molecules move across the cell membrane.

B. the size of the sugar and water molecules.

C. the final net movement of the sugar and water molecules.

D. the rate at which the water molecules cross the cell membrane.

2. **Each beaker shown below contains an amphibian egg collected from one of four different locations.**



Which of these beakers contains an egg that would shrink?

A. 1

B. 2

C. 3

D. 4

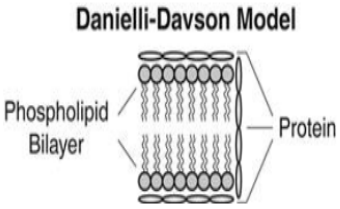
Whitehaven High – Grade Improvement Assignment – Honors Biology

Please send completed assignment to your teacher by 11:59 pm on May 11, 2020.

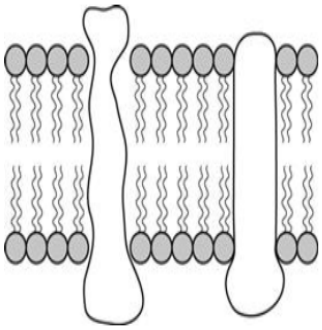
(Arnett: arnettm@scsk12.org White: whitek1@scsk12.org)

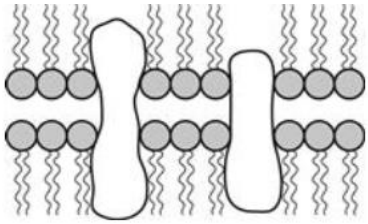
Student Name: _____ Date: _____

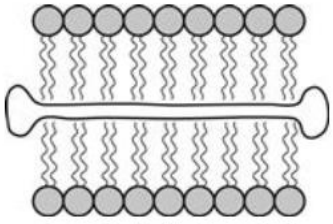
3. In 1940, Danielli and Davson proposed that the cell membrane was a bilayer of phospholipids. These phospholipids were sandwiched between two continuous layers of proteins as shown.

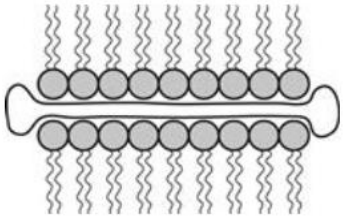


Later, electron micrographs revealed globular irregular proteins embedded in the bilayer of the phospholipids. Unlike the Danielli-Davson proposal, the proteins were scattered throughout the outer surfaces. Which of the following BEST modifies the Danielli-Davson model of the cell membrane?

A. 

B. 

C. 

D. 

Whitehaven High – Grade Improvement Assignment – Honors Biology

Please send completed assignment to your teacher by 11:59 pm on May 11, 2020.

(Arnett: arnettm@scsk12.org White: whitek1@scsk12.org)

Student Name: _____ Date: _____

4. **The ABO blood group has three different alleles: I^A, I^B, and *i*. The genotypes and phenotypes (blood types) for different combinations of the three alleles are shown in the table.**

Possible Genotype and Phenotypes of ABO Blood Group

Genotypes	Phenotypes (Blood types)
I^AI^A or I^Ai	Type A
I^BI^B or I^Bi	Type B
ii	Type O
I^AI^B	Type AB

What percentage of offspring from a cross between a homozygous Type A parent with a heterozygous Type A parent is expected to contain the *i* allele?

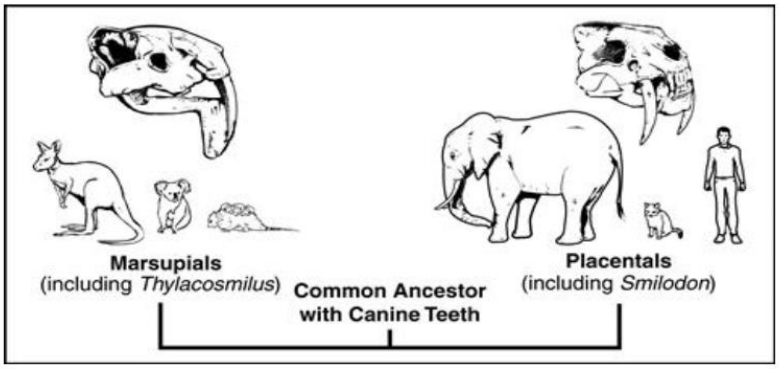
A. 25%

B. 50%

C. 75%

D. 100%

5. **The saber-tooth trait appeared independently in the animals *Thylacosmilus* and *Smilodon*.**



Which statement BEST explains why this trait evolved in both types of organisms?

A. The two groups of organisms bred with each other.

B. Both groups expressed recessive ancestor genes for the trait.

C. Each group inhabited a niche in which selection pressures favored the trait.

D. Both groups underwent the same sequence and timing of genetic mutations.