**Friday-Diffusion/Osmosis Jigsaw Presentations**

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Rm 2-221 and 2-223

~32 students

Mayo High School, 9th Grade Honors Biology

**Lesson Date and Time:** January 11, 2012

Hours 1, 2, 5, 8

**Class length:** 50 minutes

**Materials:** Cell Biology Packet #2

Whiteboards and markers

Cell Transport PPT

Experiments from yesterday

Balances with weigh boats

**MN State Benchmark:**

9.4.1.2.5 Compare and contrast passive transport (including osmosis and facilitated transport) with active transport, such as endocytosis and exocytosis.

**Vocabulary:**

Selective permeability

Diffusion

Osmosis

Isotonic

Hypotonic

Hypertonic

Dynamic equilibrium

Transmembrane proteins

Passive transport

Active transport

**Objectives:**

Students will be able to summarize the processes of diffusion and osmosis.

Students will be able to identify a solution as **hypotonic**, **isotonic**, or **hypertonic** and describe the direction that osmosis would occur (into the cell or out of the cell).

**Announcements/Reminders: 2 minutes**

Students need to take their poster boards home today. If left here, we will assume they are garbage.

QUEST Tuesday- on the plasma membrane and cell transport (what we are discussing today)

Tell students: Take out your packet and your notes on osmosis (these are on a “build a membrane” sheet or in their notebook).

**Anticipatory Set: 13 minutes**

Show students the osmosis/diffusion cartoons (see PPT)

Why don’t these fit the definition of osmosis?

(no semiperable membrane, not the movement of water, animals-not cells)

Call on student volunteers.

Not sure? …Then check your notes

Give students ~10 minutes to prepare for their presentations. Tell them what time they will need to be ready to present by.

Circulate and ask students how they plan to present their information.

Give suggestions if necessary and answer questions that students have.

**Input: 25 minutes**

Have everyone go back to their seats.

Ask: What should audience members be doing during presentations?

1. Listen
2. Take notes on page 3
3. Raise your hand to ask questions

Call on a group that wants to go first.

One group at a time will present their experiment and concepts from yesterday.

The rest of the class will take notes on page 3 of their packet.

After each group ask if students have any questions. Also allow time to finish taking notes.

Ask clarifying and questions as necessary.

**After all presentations:** 2 minutes

Turn to your elbow buddy. One of you summarize diffusion in one sentence and one of you summarize osmosis in one sentence. Not at the same time!

Meanwhile, project PPT on the screen (start from the fish slide)

Discuss:

Tomorrow we are going to talk about a couple other kinds of cell transport.

Does anyone remember (from your reading) what the two major categories of transport are? Active/Passive

What kind on transport are diffusion and osmosis? Passive

How do we know they are passive transport?

What is the difference between active and passive transport?

**Guided practice and monitoring: 5 minutes**

Students will apply the concepts of diffusion and osmosis to a real-life situation.

Fish PPT slide-Talk with your group of four about what you think would happen to the fish and their cells in each of these situations. Think about osmosis*.*

Discuss what would happen in each situation.

What type of solution is this? (Hypotonic, hypertonic, isotonic)

Which direction will water move? (in or out of the cell)

What happens to the size of the cell? (shrinks or swells)

What happens if the cell get’s too full of water? (pops!)

Will the fish survive?

Make sure that students are using the words *osmosis* and *solute*.

Tell students:

Saltwater fish have special adaptations to take in extra water and conserve the water already in their bodies. They are constantly drinking water and they don’t pee very much!

Freshwater fish simply urinate out extra water.

**Closure: 2 min**

Ask students:

How are you feeling about what we learned today?

Thumbs up if you think you completely understand it

Down if you are totally confused.

Remind students to come in if they want help before the quest.

Ask students if they liked learning from each other.

**Independent Practice: 1 min**

We do have a QUEST Tuesday- on the plasma membrane and cell transport

You can start to fill out page 4 as a study guide. I will be collecting the packet on Tuesday.

We will be talking about other types of transport on Monday before reviewing for the QUEST.