**Translucent, Transparent, and Opaque**

**Purpose:**
This is an introductory lesson about the basic characteristics of visible light. It focuses on objects and whether they are opaque, transparent, or translucent. During this lesson I will introduce the meanings of the words opaque, translucent, and transparent and will also allow students to explore the concepts by testing objects and determining which property of light they are.

VA SOL 5.3- The student will investigate and understand basic characteristics of visible light and how it behaves. Key concepts include:
- a) transverse waves;
- b) the visible spectrum;
- c) opaque, transparent, and translucent;
- d) reflection of light from reflective surfaces; and
- e) refraction of light through water and prisms.

**Objectives:**
Given a foldable that is created with the help of the teacher, TSWBAT cut pictures out of a magazine of at least one object that is translucent, transparent, and opaque with 100 percent accuracy.

TSWBAT explain the difference between opaque, translucent, and transparent, when given an end of the lesson questionnaire, with 100 percent accuracy.

**Procedure:**

**Introduction/Engagement:** (7 mins)
- Today we will be learning about light and how it passes through objects.
- I am going to play a song for the students that explains a lot about the characteristics of light [http://www.youtube.com/watch?v=CbkaL-vgiKI]
- I will tell them to listen closely to the song and keep in mind anything that they hear about how light passes through objects.
- They will share what they heard with the class.

**Development:**

**Explore:** (15 minutes)
- Put students in groups of 4-5.
- Pose task- Each group will be given a bucket that has a wide assortment of objects. Each group will also be given a flashlight. Work together as a team and sort the objects in groups that make sense to you. Remind them to use the flashlight when conducting their sort.
- Possible questions for groups:
  - How can you use the flashlight to sort the objects?
What do you notice when you shine the flashlight on certain objects?
Do you see any patterns between the objects?
What do you think some possible names for each category could be?

**Explain: (15 mins)**
- Have each group explain the ways in which they sorted the objects.
- Look for common themes.
- After each group has explained, give each student a piece of paper which they will use to make a foldable about each characteristic. See example below:

![Foldable Example](image)

- After the foldables have been constructed, as a class, we will take notes about each characteristic.

**Expand: (10 mins)**
- Give each group of students a stack of old magazines.
- Tell them to look through the magazines for pictures of objects that are translucent, transparent, and opaque.
- They will cut the pictures of the objects out and paste them on their foldable that they made. This will help them to have a visualization of an object that is transparent, translucent, or opaque, and it will also help them to expand on their knowledge of the concepts by seeing how much they understand about each word and what it means.

**Summary/Closure: (5 mins)**
- Ask the students what each word means. (translucent, transparent, opaque)
- Do a class sort where you pull objects out the bags that were used in the exploration part of the lesson and allow the students to call out what each object is now that they are aware of the characteristics.
**Materials:**
- Light video from Youtube
- Computer
- Projector
- Paper
- Markers
- Magazines
- Containers of objects
- Exit Pass worksheet
- Scissors
- Glue or tape
- Flashlights (4)

**Evaluation Part A/ Evaluate:**
- Have students complete the exit pass worksheet by answering three questions
  - What does transparent mean and what is one object that is transparent?
  - What does translucent mean and what is one object that is translucent?
  - What does opaque mean and what is one object that is opaque?
- Collect the exit passes as a means to evaluate how much they understand about the topic taught.

Interactive bulletin board that I made after teaching the lesson