Lights, Camera, MEDIA Literacy!

Lesson Plan # 16

Topics:

Journal Writing
Optics + Chemistry = Photography
Persistence of Vision
Moving Image Machines
Flip Books

Outcomes: (*Note: For students who have taken LCFL! , much of this unit will serve as a review.)*

Students will follow organizational procedures.
Students will see, hear, and use applicable vocabulary.
Students will state five contributors to early photography.
Students will apply the concept of Persistence of Vision to moving image machines and flip books.
Students will view and recall five moving image machines.
Students will follow written directions to create 50- page flip books that create the illusion of smooth movement.

Materials: *(Note: Many materials & resources in this unit are part of the LCFL! course.)*

Writing journals
LCD projector
Chart paper
Post-its
Individual student pocket folders
Sample Camera Obscura *(teacher-created or LCFL! student-created)*
Sample Sun Print design papers *(teacher-created or LCFL! student-created)*
Construction paper
praxinoscope
phenakistoscope
zoetrope
Paper string
Colored pencils
3 x 5 pads of paper (one per student)
Snack size Ziploc baggie (one per student)

HANDOUTS: How Photography Got Its Start (Optics + Chemistry = Photography)
Moving Image Machines
How to Make A Flip Book

New Vocabulary: optics, chemistry, photography, camera obscura, persistence of vision, projection (1), thaumatrope, phenakistoscope, praxinoscope, zoetrope, flip book

Sequence of Events:

I. Journal Writing (15)

Prompt:

How did you feel about creating an ad campaign?

II. How Photography Got Its Start (40)

1. Remind students of the Kodak ad campaign from the Duke University website and tell them that just as 1) Printing, 2) The Industrial Revolution, and 3) Literate Customers had to be in place before the start of mass advertising, in order for the camera to even exist, there were things that first had to be in place. The story of the camera goes back over 2,000 years before those early Kodak ads. It begins with OPTICS.

   (Note: "Lights, Camera, Film Literacy!" students should be a great resource during this unit, as they will be reviewing facts and concepts from that course.)

2. Tell students that before finding out how photography began, they will get a chance to guess this history. They may work alone or with others to fill in names on a handout that tells how photography got started.

   HANDOUT: How Photography Got Its Start
   (Optics + Chemistry = Photography)

3. Write "**OPTICS + CHEMISTRY = PHOTOGRAPHY**" on the board. Ask students what they think this means.

4. Refer students to "**How Photography Got Its Start.**" Read together #1 : *"A 2,000 year-old concept that was known by _____ is demonstrated by the Camera Obscura, which literally (in Latin) means "dark room" and replicates how images appear on your eye's retina:* ***When light travels in a straight line and reflects off a bright object on its way into a small hole, an upside-down image of the object appears on a flat, parallel surface."***

   The correct answer is "ARISTOTLE," who lived 384 – 322 B.C.

   (Students should make sure this correct answer is in the #1 blank, as this handout becomes a study guide.)

5. Show a diagram of an image upside down on the eye's retina. (***http://www.diycalculator.com/imgs/cvision-upside-down.gif***)

6. Ask if anyone has seen a **CAMERA OBSCURA**. ***(The one that some might have experienced is free and located in the Senior Center on the beach in Santa Monica, California.)***
   Show photos from the brightbytes website to students. ***(http://brightbytes.com/cosite/what.html)***

7. Show students the sample camera obscura.
   (If possible, use samples from the "Lights, Camera, Film Literacy! course or create one, using directions found at the following webpage: *http://www.exploratorium.edu/science_explorer/pringles_pinhole.html*)
   Tell students that many famous painters, such as Vermeer, used this device to make their paintings more realistic.

8. Refer students again to the handout **"How Photography Got Its Start**." Tell them to note that the year listed in #2 jumps to the 18th century and the chemistry discovery was actually a mistake. Students should make sure the answers are: *#2 …**JOHANN HEINRICH SCHULZE** put silver nitrate in a clear jar and after it was exposed to sunlight, it turned black.*

   *One hundred years later… #3… **JOSEPH NICEPHORE NIEPCE** took the first surviving photograph by coating a pewter plate with bitumen and exposing it to light.*

9. Tell students that they will now see how light can affect chemicals. Show the Sunprint paper designs. ***(If possible, use samples from the "Lights, Camera, Film Literacy! course or create one.)***
   Explain that wherever the light hits the paper, the color changes. When the light cannot hit the paper, it stays the same.

10. Refer students again to '**How Photography Got Its Start**.
    Review the next answer… ***#4… "LOUIS JACQUES DAGUERRE*** *improved the process, which came to be called "The Daguerreotype."* ***Daguerre's memorial is outside the National Portrait Gallery, near the Verizon Center at 7th and F Streets in Washington, D.C.***
(Google.com/images for photos of the man, the memorial, and sample daguerreotypes)

Students have probably seen daguerreotypes, whose subjects did not smile as they had to hold their poses quite a while to allow the light to affect the chemicals. Children often were blurred due to their movements. Sometimes children's arms were tied to the chairs to keep them still.

11. Review the next answer… #5…
    "In 1888 the founder of the Kodak company ***GEORGE EASTMAN*** *introduced a smaller camera that used film on a roll. As a result, photography became available to everyone."*

12. Students should keep this handout for later reference.

III. Moving Image Machines (30)

1. Tell students they will continue to guess about the start of movies, but this time with moving image machines. They complete the next handout on their own or with a classmate.

HANDOUT: Moving Image Machines

2. Use the ANSWER KEY to review with students. During the review, show pictures of the machines mentioned in ***EYEWITNESS BOOK: FILM,*** pages 8 & 9, and the two websites:

    http://www.randommotion.com/html/zoe.html
    http://brightbytes.com/collection/per_vis.html

    Stress an understanding of **PERSISTENCE OF VISION**
    (The retina holds an image briefly before it processes the next viewed image.)

IV. Flip Books (100)

1. Ask students if they have ever seen a flip book. If so, they have used persistence of vision as they flipped sequential pictures at a rapid pace. Tell students they will be creating their own flip book.

HANDOUT: How to Make A Flip Book

Allow time to complete individual flip books as classwork and possibly homework. Store in individual baggies for safekeeping.

Also consider setting up class centers where students may:

- Read the ***FILM*** book.
- Look at the disks on the Praxinoscope and Zoetrope.
- Try creating disks for the Praxinoscope and Zoetrope.
- Look at sample flip books.
- Create a **THAUMATROPE**.
- Explore a Fisher Price Movie Viewer.

(This toy can often be found on eBay.com)

If your school has a 16 mm projector…
Consider having students create simple movies by drawing directly onto 16 mm leader film *(non-shiny side, between frames, away from sprocket holes)* with thin marking pens.

(Phil's Vintage Movie Films & Collectables: 200 feet -$39.)

V. Reflection (15)

1. Direct students to the hanging chart paper labeled:

What does Optics + Chemistry = Photography mean to you?
What does Persistence of Vision mean to you?

2. Hand out Post-its on which students write an item to post on the chart.

3. Review the comments on the Post-Its with the class, so students have a sense of what was learned. Make sure to clear up any misconceptions.