

NOTE: It is **HIGHLY RECOMMENDED** that the instructor go through these exercises personally before giving them to the students. It is very hard to troubleshoot in a real time laboratory environment if the instructor does not have some experience with what the students are working with. This does not mean that the instructor must be a computer expert (if possible, have the lab technician present during the class to handle any errors that are not lesson-related). Students have confidence when their questions can be answered or when they can be guided out of a dead end. As with any other field, the only difference between an expert and a novice in Photoshop is time spent with the tool and a history of grappling with all of its idiosyncrasies. Again, it is **HIGHLY RECOMMENDED** that the instructor have done these exercises before conducting the class. Make sure you have signed up for the computer lab in advance.

TITLE OF LESSON

Biology Unit 1 Lesson 32 – Photoshop II: Introduction to Adobe Photoshop
How do cells store and transfer information?

TIME ESTIMATE FOR THIS LESSON

One class period

ALIGNMENT WITH STANDARDS

California – IE 1

MATERIALS

Explanation of Tools – Student Page
Photoshop Basics II – Teacher Page
Adobe Photoshop
Computer

LESSON OBJECTIVES

- To understand how the eraser, text, painting and drawing tools work in Photoshop
 - To understand the basics of working with FILTERS in Photoshop
 - To understand how the magic wand tool works
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EXPLANATION OF LESSON

Today, students will be using the Photoshop image *Method* that they created in Lesson 23 to further their understanding of the program. Make sure that all students have access to the saved version of that image. If you need to refresh your understanding of the program, go back to the Teacher Page, **Photoshop Basics**. Be sure you bring in extra copies of the **Explanation of Tools** sheet, as it will help you and students remember what the different tools are and what they are used for. Finally, you will need a copy of the **Photoshop Basics II** (Teacher Page) for your mini lecture today. In essence, students will spend most of the period using the filters to change, distort, and redefine their images. This should be a fun, hands-on class.

For this lesson, students will learn additional techniques for manipulating color and filters in Adobe Photoshop. Though the program is quite deep and these are only cursory introductions to the tools, the fundamental principles behind the tools will be explored. If students understand these fundamentals, they can combine and build their tool use into more sophisticated exercises. Though they may object to handling images that are not very compelling, they were selected to make the principles of the tools easier to understand.

FOCUS AND MOTIVATE STUDENTS – WARM-UP ACTIVITY

- 1) Homework Check – Collect all homework assignments. Pass back all graded work. Have students place it in the appropriate section of their binder.
- 2) [Agenda](#) – Have students copy the agenda you posted.
- 3) Review – Have students review their handouts from the last class to refresh their memory of the image processing tools they will be using today. They should still have their notes on Grabbing Images, Saving

Images, and the handout, **Explanation of Tools**. They should be able to recall how to save images, what layers are, how to work in layers, how to move images, etc.

ACTIVITIES – INDIVIDUAL AND GROUP

1. Mini Lecture – Ask students to take out a sheet of paper and prepare to take notes. Again, the reason they are taking notes is so that you do not constantly have to repeat how to use a computer program. It is their job to keep their notes and use them to try to troubleshoot their problems, use their friends for help, and access your knowledge as a last resort when all else fails. The idea is to build independent learners. The only way to do that is to let them struggle through their problems. Have students open their images, *Method_their name*. Tell them they will be working on this image during and after your lecture. To prevent any errors, ask them to save another copy of the image. Have them title it *Method_theirname2*. Using your **Photoshop Basics II** Teacher Page, deliver your lecture.
 2. Instructions – When you have finished, tell students they will have the rest of the period to change, distort, and manipulate their image. On a separate sheet of paper, students must write out the following:
 - a. The tool used to make the change
 - b. A description of the change made
 - c. How the change represents or enhances the idea of how each image represents the step of the scientific method and/or the steps relationship to the other steps in the process.
 3. Image 2 – Tell students they will have the rest of the period to complete this assignment. If they finish early, they should save their assignment and turn it in. Then they should work on organizing their binder, as binders are due at the end of the period.
 4. Clean Up – Five minutes before the end of the period, have students turn in their project, shut down their computers, and clean up their workstations.
 5. **Portfolio** – Again, this project will need to go in their portfolio as a demonstration of the growth of their image processing skills.
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HOMEWORK

None

GROUP ROLES

None

DOCUMENTATION FOR PORTFOLIO

Lab Report #1
Method – Photoshop Image
Lab Report #2
Evaluation Essay #1
Method 2 – Photoshop Image