

Adobe CS6 in the STEM Classroom



This workshop will focus ways to infuse the Arts into the STEM classroom using the Adobe Creative Suite. All the materials will be packaged in video tutorials and engaging examples that you can immediately implement in your classroom.

Crayfish

My high school digital media classes have partnered with the elementary school next door so I will be using the study of Crayfish as the vehicle for all the lessons in this workshop. You should be able to easily replace this topic with your own.

Web Site: <http://adobeinthestemclassroom.weebly.com/>

Adobe Photoshop



Photoshop is the industry leading graphic design tool and used in a variety of ways in the STEM industry. Photoshop is particularly good at presenting visual information, especially isolating features of interest.

[For more Photoshop lessons visit my web site.](#)

Interactive Presentation

We are working with a group of elementary students studying crayfish. responsible for creating an interactive presentation that highlights the structures of the crayfish. You will use Photoshop and the Google Drive tool to accomplish this task. Each member of your group is responsible slides.

Structures

- **Claw/Pincer**
- **Eyes**
- **Short and Long Antennae**
- **Legs**
- **Exoskeleton**

[Crayfish Information](#): Please read the "Description" section. This information is about a specific crayfish but the basics are the same regardless of the species.

[Cropping and Resizing](#) (3:44)

By the end of this lesson I will understand how to crop and resize an image in Adobe Photoshop for use in a printed document or a presentation. [[Download File](#)]

[Photoshop Pop Out Lesson](#)

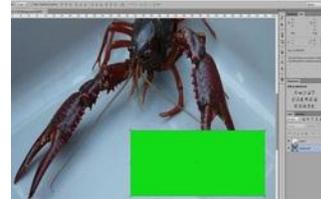
By the end of this lesson I will know how to use layer styles, layer groups and to merge layers.

[Presentation - Advanced](#)

By the end of this lesson I will know how to create a Google Presentation that uses buttons to navigate and graphics designed in Photoshop as the content.

Related Articles

[10 Tips for using Rulers and Guides in Photoshop](#) - This is from a good blog called "Photoshop for Scientist".



We are
primary
presentation
for 1-2
Crayfish

Adobe Illustrator



Adobe Illustrator is the industry leader for vector graphic production. The beauty of vector graphics are that they are created with mathematical calculations so all the art work will be infinitely scalable. For my classroom, Illustrator is the perfect tool for data visualization or creating "InfoGraphics"

Infographics and Data Visualization

Wikipedia Definition

Information graphics or infographics are graphic visual representations of information, data or knowledge intended to present complex information quickly and clearly. They can improve cognition by utilizing graphics to enhance the human visual system's ability to see patterns and trends. The process of creating infographics can be referred to as data visualization, information design, or information architecture.

What is Data Visualization: <http://www.youtube.com/watch?v=YaGqOPxHFkc>

[USA Today](#) has some interesting examples: Scroll down and click on "Snapshots" on the left bar. I use my iPad USA Today app to show these and have my students explore them for ideas.

Illustrator Lessons

Crayfish Pie Graph and Symbolic Facts:

Louisiana produced 90% of the crayfish harvested in the world, 70% consumed locally. Source: [Wikipedia](#)

[Creating a Pie Chart with Adobe Illustrator](#) (7:48)

By the end of this lesson I will understand how to create a pie chart with Adobe Illustrator. I will know how to use the Chart & Direct Selection tools, change the Fill and Stroke, as well as, working with text.

[Creating a Symbolic Infographic with Adobe Illustrator](#) (4:37)

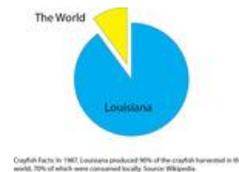
By the end of this lesson I will understand how to create a symbolic infographic with Adobe Illustrator using the symbol tool.

[Creating a Linear Infographic with Adobe Illustrator](#) (5:04)

By the end of this lesson I will understand how to create an accurate linear infographic or numerical representation by creating an art brush from the data.

Crayfish Linear Facts

By the mid-**1960s**, the amount of land devoted to crawfish farming had increased to approximately **10,000 acres** of managed ponds. At this point, an industry based on peeling crawfish became established, and the new markets for crawfish meat allowed both crawfish farming and wild harvests to increase even more. Acreage continued to increase in Louisiana, from approximately **44,000 acres** in the mid-**1970s** to **current (2012)** levels of roughly **120,000 acres**. Source: "[A Brief History of Crayfish Farming in Louisiana](#)" LSUAgCenter



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Additional Information and Examples

TED Talks: [David McCandless: The beauty of data visualization](#) (This is an excellent 15 minute presentation.)

Teaching with Infographics: Places to Start

Kathy Shrock: <http://www.schrockguide.net/infographics-as-an-assessment.html>
<http://learning.blogs.nytimes.com/2010/08/23/teaching-with-infographics-places-to-start/>
<http://columnfivemedia.com/work-types/infographics/>
<http://killerinfographics.com/projects/geekwire-infographic-silicon-valley-vs-seattle-geeks>

How to:

<http://www.fastcodesign.com/1670019/10-steps-to-designing-an-amazing-infographic>

Do's & Don'ts:

<http://www.smashingmagazine.com/2011/10/14/the-dos-and-donts-of-infographic-design/>

Creating Infographics That Rock - How To Make An Infographic <http://www.youtube.com/watch?v=VaRCuYCO5FE>

Examples

Interesting example of animated infographics (mute and skip the talking head)

<http://youtu.be/GekPwNk2KzA>

[Visual.ly](#): This is a great place to see some excellent examples of InfoGraphics. (Blocked at school)

Adobe: Creativity and Education: Why it Matters

http://www.adobe.com/aboutadobe/pressroom/pdfs/Adobe_Creativity_and_Education_Why_It_Matters_infographic.pdf

Online Tools

Many Eyes: <http://www-958.ibm.com/software/analytics/manyeyes/>

Gap Minder: <http://www.gapminder.org/for-teachers/>

Adobe Flash Professional



Adobe® Flash® Professional CS6 software is a powerful authoring environment for creating animation and multimedia content. Design immersive interactive experiences that present consistently across desktops and multiple devices (except Apple products) – including tablets, smartphones, and televisions.

Interactive Presentation

We are working with a group of elementary students studying crayfish. We are responsible for creating an interactive presentation that highlights the primary structures of the crayfish. You will use Adobe Audition and Flash Professional to accomplish this task.

Crayfish Structures

- **Claw/Pincer**
- **Eyes**
- **Short and Long Antennae**
- **Legs**
- **Exoskeleton**



[Crayfish Information](#): Please read the "Description" section. This information is about a specific crayfish but the basics are the same regardless of the species. Reference Image

Site: http://www.biologyjunction.com/crayfish_dissection.htm

Flash Professional Lessons

[Getting Started](#) (2:07)

By the end of this lesson I will understand how to start an Adobe Flash Professional project, import or copy/paste a photograph and set the stage size to fit the image.

[Layers](#) (5:52)

By the end of this lesson I will understand how to work with layers, strokes and fills, and the basic tracing techniques.

[Shapes and other drawing techniques](#) (3:36)

By the end of this lesson I will understand how to create shapes and use the line tool to cut shapes into multiple parts.

[Creating Audio Files with Audition](#) (2:35)

By the end of this lesson I will understand how to use Adobe Audition to record audio, cut out unwanted sections, and save the files for use in a multimedia project. You can also download [sample audio files](#) for this project.

[Buttons](#) (5:08)

By the end of this lesson I will understand how to create a button in Flash. I will understand the difference between the up/over/down states and the hit area. I will understand how to use Keyframes to have text pop up in the over state and audio play in the down state.

[Publishing](#) (2:35)

By the end of this lesson I will understand how to delete the photograph layer and publish the interactive illustration for the web.

Adobe Premiere Pro



Adobe Premiere Pro is one of the top video editing software applications in the industry. It is an excellent tool for presenting information that combines audio, images, video and text. In these lessons I will show you the basics and try to emphasize ways that you can use a video editor in the STEM classroom. For example, the ability to slow the motion of an experiment down so you can better analyze what is happening can be a valuable learning experience.

Premiere Pro Lessons

File Management

By the end of this lesson I will understand why file management is critical to video editing and where to save my files.

Starting a New Premiere Pro Project

By the end of this lesson I will understand how to make sure my Premiere Pro project is saved into the right folder.

Preferences

By the end of this lesson I will understand how to set the auto save and image scaling settings in the preferences panel.

Importing Media and Creating a New Sequence

By the end of this lesson I will understand how to import media files into my Premiere project and then create a new sequence that matches the video clips. **Your video camera will have directions on how to get the video clips onto your computer. Just pay attention to make sure the video files all get into your project folder. For this workshop just use the sample files you downloaded earlier.*

Editing Basics

By the end of this lesson I will understand how to create a rough cut, including how to trim clips on the timeline or in the source window, work with images, and rearrange clips.

Speed and Duration

By the end of this lesson I will understand how to use "Speed and Duration" to slow video down so it can be analyzed.

Titles

By the end of this lesson I will understand how to create a title and add it to the sequence both as an overlay and full screen.

Adding Audio

By the end of this lesson I will understand how to import and add audio files to the sequence.

Zooming

By the end of this lesson I will understand how to use the effects control to zoom in on a specific part of a video or image.

Weather Forecaster

By the end of this lesson I will understand how to use the Ultra Key effect to create the weather forecaster effect.

Exporting

By the end of this lesson I will understand how to export a video project so I can share it with others.

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Resources

[Adobe Exchange](#) - Searchable database of lessons focused on Adobe software.

[SciArts](#) - The SciArt Series is a collection of art that celebrates the scientific breakthroughs at the Intel® International Science and Engineering Fair®.

[STEM to STEAM is a RISD](#)-led initiative to add Art and Design to the national agenda of STEM (Science, Technology, Engineering, Math) education and research in America. STEM + Art = STEAM.

[STEM to STEAM](#) - The STEM to STEAM initiative, championed by RISD President John Maeda, is supported by teachers, researchers, policy makers, students, and businesspeople from RISD and beyond. At the heart of the activity, a team of student research assistants work in the Office of Government Relations to apply their firsthand knowledge of Art + Design education to explore new avenues for STEM to STEAM.