Lightboard: Doing it Live!

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Outline

- Lightboard
  - What is it?
  - Benefits
  - Design and build

- Open Broadcaster Software (OBS)
  - What is it?
  - Benefits
  - Usage
What is a Lightboard?
Instructional Benefits

- Face-to-face conveys emotion
- Integrates the instructor with the content
- Extensible: slides, images, videos can be added as overlays
- Bright text on black background is easier to read
- Looks professionally produced
Design Decisions

- Dimensions: Board (6’x4’) and floor (10’x6’)
- Type of glass: Standard, Starphire (low iron), or Plexiglass
- Mounting: Wood or metal

Estrella Mountain Community College

Emporia State University
Design Decisions

- Glass lighting: Tape, 3D printed clips, carved channels

- Presenter lighting: LED strands, Softbox continuous lighting
Design Decisions

- Other features: dimmers for lights, height adjustable table, wheels
- Camera: Webcam, camcorder, DSLR
- Microphone: Boom mounted, clip-on, headset
- Number and positioning of monitors
Getting Help

- lightboard.info
- Emporia State University (Anna Catterson)
- Instructables
- Flipped Learning
- Slides from talk at KC Math Tech EXPO
- Also consider searching for “Learning Glass”
Learning Curve

- Writing backwards (just kidding!)
- What to wear
- Standing in front of text
- “Weatherperson wave”
- Limited writing space (compared to classrooms)
- Erasing takes time/effort
- Keeping videos short
Making Videos

- How long does it take to make a 5-, 10-, or 30-minute video?
- How long *should* it take?
- Post-production is a time-sink, even with practice.
- The longer and more difficult it is to make a video, the fewer I will make.

**Goal:** Eliminate post-production. Do it live!
Demo
Open Broadcaster Software (OBS)

- obsproject.com
- Free, cross-platform, and open source
- Flips the image in real time
- Incorporates webpages, videos, images
- Overlays transparent slides or pdfs
- Rearrange or hide elements on-the-fly
- One-touch recording
OBS Guide
OBS Basics

**Sources:** webcams, monitors, windows, images. Right-click to add.

**Scenes:** Saved arrangements of sources. Right-click to add. Left-click to switch.

**Canvas:** Arrange sources

**More options:** Right-click on any source.
OBS Guide - Add a Webcam Source
OBS Guide - Webcam Source Settings

![Webcam Source Settings in OBS](image)
OBS Guide - Backwards Webcam
OBS Guide - Fixing Backwards Webcam
OBS Guide - Add Transparent Overlay
Black background.

White Text.

Fancy!
OBS Guide - Make BG Transparent
OBS Guide - Set Transparency (Key)
OBS Guide - Setting “Black” Color Key

Filter for Image

Effect Filters

Color Key

Key Color Type: Custom Color

Key Color: #000000

Similarity (1-1000): 80

Smoothness (1-1000): 50

Opacity: 100

Contrast: 0.00

Brightness: 0.00

Gamma: 0.00

Close
OBS Guide - Setting “Black” Color Key
Saved “scenes” eliminate pre- and post-production for future videos.
Applications

- 100+ videos so far! (2-5 per week)
- Short after-class videos
- Solution videos
- Recorded conferences
- Overwhelmingly positive student responses
Thank you!

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OBS Settings - General

Check “Save projectors on exit”
OBS Settings - Output

Recording quality:
“Same as stream” - large files, slower computers
“High Quality” - smaller files, more CPU intensive

Recording format:
“flv” - download VLC to view
“mp4” - more standard format
OBS Settings - Audio

May need to specify desired microphone in dropdown menus
OBS Settings - Video

Keep Base and Output resolutions the same
1920x1080 for full HD (better computers)
1280x720 for smaller files (slower computers)
30 or 60 fps recommended
20fps for slower computers
OBS Settings - Hotkeys

Set start/stop recording key (may be the same)
OBS Settings

☐ I don’t change any settings in “Stream” or “Advanced”