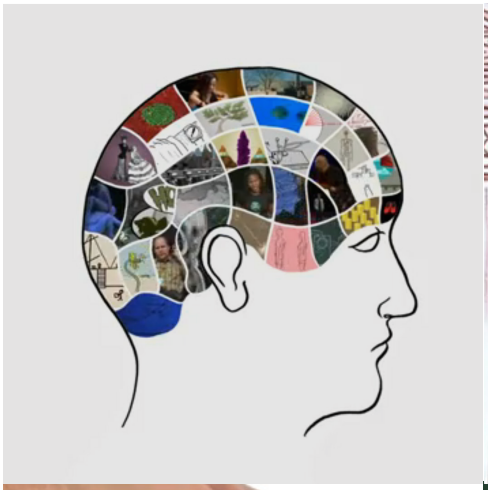
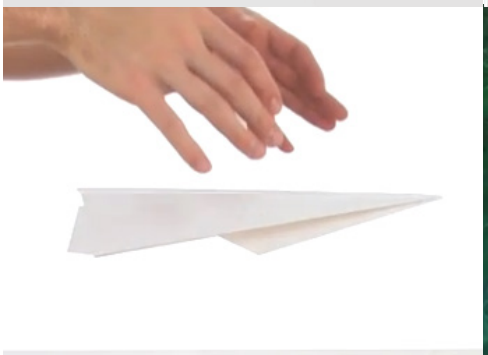
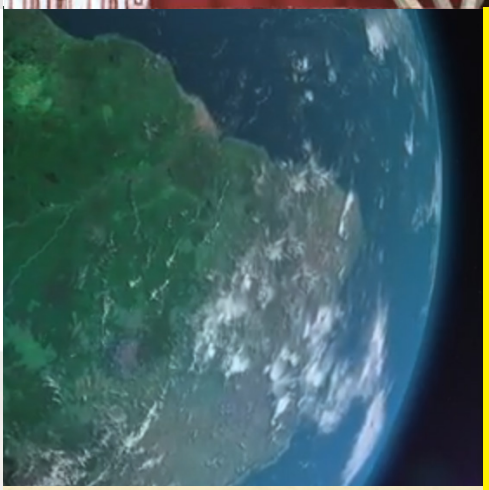






Mind Shift

Teachers' Guide to Using Videos

by CATLIN TUCKER

PART I

What's Out There?

You've heard the staggering numbers -- they seem almost impossible to comprehend. People across the globe upload 48 hours of video to YouTube every minute, which translates to nearly eight years of content every day. And that's not taking into account any other video-uploading site.

With this much content out there -- and let's face it, a lot of it is pretty silly -- the idea of slogging through all those videos to find gems that best lend themselves to learning might seem daunting. But truth is, there are many worthy videos that *do* help enhance students' understanding of subjects, whether it's showing how squids camouflage themselves underwater or how fictional novels influence reality.

Beautifully produced videos from NOVA showing the miracles of science; inspirational TED Talks on topics ranging from sustainability to gender inequality; behind-the-scenes views of the international space station on Reel NASA; a walk through the world's most impressive art collection at the Museum of Modern Art (MoMA) -- these are all part of the rich mix of content that gives students access to a world of subjects.

So where do you start? To make sense of what exists online, educators can think about dividing videos into two categories: instructional or supplemental. Instructional videos can be used to instruct or explain complex concepts, and are ideal for replacing traditional lectures or providing an alternative explanation. Supplemental videos complement in-class work to pique interest, drive inquiry, motivate exploration and problem solving, expand on concepts or offer an alternative explanation.

Educators can also find lots of professional development-related videos but, for the purposes of this guide, we'll stick to educational content. Examples follow.

NOVA's spectacular Earth From Space video.

5 AWESOME SITES FOR INSTRUCTIONAL VIDEOS

- Tired of standing in front of five classes delivering the same lecture on the Constitutional Convention or the French Revolution? Check out HughesDV channel which offers a comprehensive collection of U.S. and world history video lectures. Hughes' playlists include: AP American Government, U.S. History for Dummies and Elections for Dummies.

- Crash Course is a channel that merges a world history course with a biology course. Instructional videos created by brothers John and Hank Green, cover topics ranging from "The Cold War" to "Fungi." Their fast-paced explanations are paired with awesome graphics to teach students complicated concepts. The videos are vocabulary-rich, so teachers should provide students with time and space to absorb the information presented.

- Steve Spangler Science Channel offers a mix of both instructional and supplemental videos. The Spangler Effect videos feature Steve Spangler pairing short explanations with demonstrations of high interest scientific concepts, like the science of dry ice or bubbles.

- The Sick Science videos are a collection of simple, supplemental science experiments perfect for motivating students to ask questions, design hypotheses and make predictions. Sick Science has a collection of fan-favorite videos that include Hovering Plane, Disappearing Money and The Shrinking Bag.

Crash Course Chemistry #6

- PBS LearningMedia is a treasure trove of high-quality content that comes from the best of public broadcasting stations around the country. You'll find tens of thousands of videos that explain all manner of subjects -- from Newton's Law of Motion to using recipes for fractions.

VSauce: Is Your Red the Same As My Red?

6 EXCELLENT SITES THAT SUPPLEMENT YOUR LESSONS

In addition to the YouTube channels that focus on explaining concepts, you'll find myriad channels that offer engaging and thought-provoking supplemental ideas that can complement the work you're doing in the classroom.

- Vsauce, a channel created by and featuring Michael Stevens, answers questions like, "Why do we have two nostrils?" and "Why are things cute?" The answers are captivating explanations that link the seeming mysteries of the human body with fascinating biological explanations.
- ViHart's Channel uses mathematical doodling to capture the imagination and spark creative thinking about mathematical concepts. Check out "Doodling in Math Class" which explores parabolas and what happens when you connect the dots in creative and unconventional ways.
- CP Grey creates entertaining videos that pique interest and quickly cover quirky topics of interest like "What if the Electoral College is Tied?" or "5 Historical Misconceptions Rundown." Topics work best for secondary audience.
- Smart Songs combines hip hop, storytelling and skits to create memorable songs that explore history and science topics. Students are likely to get catchy lyrics from raps like "Three Branches [of Government]," "Bill of Rights" and "Stock Market" stuck in their heads for days.
- The U.S. National Archives has several video series including "Tracing World War II"that provide a visual component to historical courses. The video footage and photography in these videos allow students to see the progression of events during World War II, including historical moments like D-Day 1944 and the Battle of Guadalcanal.

PART II

What's Good? Curating and Evaluating Video Content

Part of every educator's job is figuring out what content to share with students and video is no different. In this capacity, teachers become curators of videos, finding quality content that can be used for a particular purpose.

Educators can curate videos on their own, looking for either instructional or supplemental content distinguishing the gold from the garbage. For time-strapped teachers looking for help with curation, here are some strategies and tips to help identify and evaluate videos without spending endless hours online.

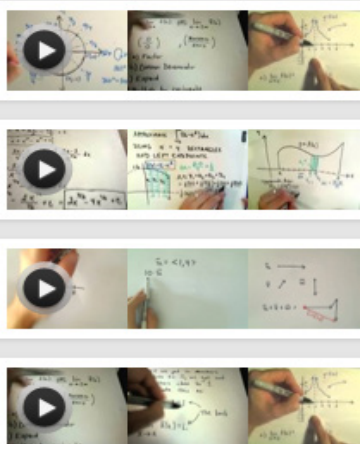
SITES THAT CURATE EDUCATIONAL VIDEOS

First, check out videos that have already been curated. Doing a blind search for videos related to "biology" yields hundreds of thousands of links, but the quality of the content varies widely. The best place to start is by exploring a site that's done some of the work for you – a site dedicated to curating educational content. This makes it possible to more quickly identify the best content available online.

- Youtube.com/Teachers saves time by identifying and organizing educational content aligned with the Common Core State Standards. Teachers can search by subject area - language arts, math, science and social studies, or by grade level - elementary, middle school and high school.

- EduTube.org is an educational video search platform with helpful indexes that measure popularity, ranking and educational value. The objective is to create a more effective way to search YouTube videos for specific content.

- BackPack.TV is a video curation site that partners with teachers to find quality video content. The result is a user-friendly site where teachers and students can search a large collection of curated videos by subject, playlist or textbooks. Several of the featured schools include popular video collections like Khan Academy, a growing collection of video tutorials about math, science, humanities and art concepts; 60 Second Recap, featuring quick, high-energy summaries and overviews of popular novels; Bozeman Biology, a high school biology teacher's video site explaining and demonstrating concepts; and PatrickJMT, supplemental math videos designed to enhance great teaching.



Patrick JMT's math tutorials on YouTube.

TED-Ed .

WHAT MAKES A GOOD VIDEO?

One of the hardest parts of using videos for learning is judging whether they're useful. Although many video curations sites have their own standards, calculations, ratings and measures for judging the quality of a given video, it doesn't mean the video will work for you and your students. It's important to preview the videos and evaluate them with your goals and objectives in mind.

Here are some questions to consider when evaluating the quality of a video:

- **Does the video identify a clear topic to be discussed, a question to be answered or an objective to be reached?** The best lessons begin by clearly stating the subject and identifying the intended outcomes. In the same way, an educational video should begin by stating the topic and objectives.

- **Is the content accurate?** This may require some cross-referencing and fact-checking on your part. Just as anyone can create a website, so, too, can anyone generate a channel and upload videos.

- **Who's producing (and possibly starring) in the video? Is the content creator an educator, expert in the field or an enthusiast on the topic?** Most videos or video channels have an "About" section where you can find out more about content creators and the purpose of the videos and channels. Establishing the content creators credibility is an important factor to consider during the evaluation process.

- **Is there a balance between educational content and entertainment?** It's the perennial question educators ask themselves –is the video purely for entertainment or is there educational value? You'll find exciting videos with media, music and movement that capture student interest, but don't offer much in terms of content. On the other hand, there are plenty of videos rich in content that lack energy, excitement and variety. The best ones capture both.

- **Does the media used in the video add to or detract from the content?** The addition of graphics, demonstrations, music and written information should enhance the material presented. Unfortunately, poor sound quality, photo resolution and other low-quality additions can make a video less effective and distract students from the subject.

- **Is there a wrap-up, summary or short conclusion?** Many videos are fast-paced, presenting a ton of information in a short period of time. Videos that conclude with a brief review of the information covered can be extremely helpful in highlighting the main points for students.

Similar to the way we filter an online search when looking for a particular website or resource, it's always a good idea to evaluate the quality of videos when searching for educational content. The videos that pop up at the top of your search or the videos that have received the highest number of views won't always be the highest quality.

PART III

Blending Videos into Your Curriculum

The average young person between the ages of 13 and 24 spends 16.7 hours online each week, according to the report "Born to be Wired" commissioned by Yahoo. The flood of online content, images, music and video students spend so much time pursuing clearly captivates them.

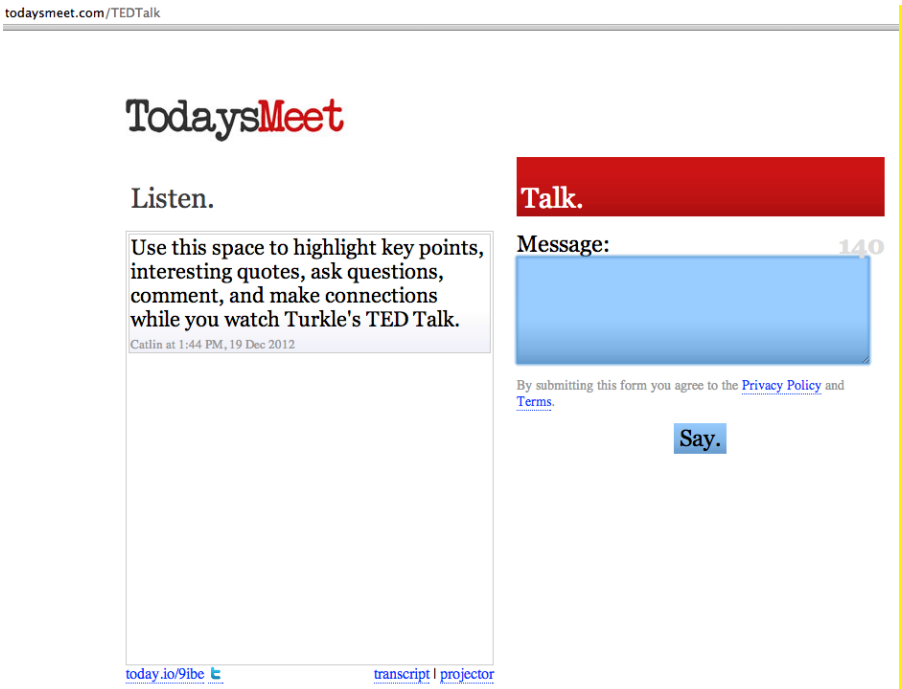
Educators can weave online content into curriculae in a way that enhances learning for students. Though videos can never replace the personal dynamic between educators and students, they can be used to ignite conversations; pique interest; create perplexity and inspire inquiry; flip instruction and extend engagement; demonstrate labs, experiments and abstract concepts; and create opportunities for students and teachers to create their own media.

IGNITE CONVERSATIONS!

Every teacher has experienced the frustration of a discussion falling flat in class. Even when teachers design substantive, open-ended questions, students sometimes choose not to share their ideas or engage in conversations with other students. That's when videos can lead to discussions and a platform for sharing ideas, even if it's out of the classroom.

SOME EXAMPLES:

On the popular TED Talk by Sherry Turkle, "Connected, but alone?" (http://bit.ly/WGir) the author explores the contradictory idea that with connectivity comes isolation. She explores the phenomenon that young people today are more connected to each other than ever before via technology, yet in many ways they feel more disconnected and lonely. This talk can inspire students to consider their relationships with other
people and how technology has impacted those relationships.



If teachers have access to technology in the classroom,they can pair the video with a back channel tool like TodaysMeet, encouraging students to react to the video as they watch.

Students can post comments, identify interesting quotes, ask questions and make connections.

The back channel conversation is also a great starting point for real-time conversations. Educators can capture students' ideas and use them to find commonality.

Did students identify an interesting statement worth analyzing? Did some of the students post the same question? Do the comments reveal strong opinions about the subject being discussed?

Following the video and back-channel with a face-to-face conversation encourages students to dig deeper. When whole-class discussions don't allow every student to share his or her thoughts, you can try breaking the class up into four smaller groups using a simple four corner conversation strategy which effectively creates opportunities for more intimate conversations. The teacher randomly assigns students to corners of the room to discuss a predesigned question. Alternately, the teacher uses the back channel as inspiration for discussion topics and invites students to go to the discussion topic that interests them most.

Online discussions paired with dynamic videos are also a powerful way to use videos to drive interesting asynchronous conversations. Take, for example, the Khan Academy channel which has thousands of videos on topics including math, science, astronomy, art history and humanities. One of its videos, "French Invasion of Russia," has been embedded into a Collaborize Classroom discussion topic. Collaborize Classroom is an online discussion platform specializing in conversations with different question structures, the ability to embed media, and results pages where educators can see the outcomes of discussions.

Students can watch the video in their private online discussion space where they have time to consider the question, articulate a response, reply thoughtfully to their peers and learn from each other. Taking discussions online enables students to engage in the conversation at their own pace, and in a location that's comfortable for them. Students also get to learn from their peers' ideas. This particular topic has the added benefit of teaching argument writing, as the video is paired with a debate topic.

PIQUE INTEREST, CREATE PERPLEXITY AND INSPIRE INQUIRY!

Capturing and maintaining student interest can be the toughest part of teaching. What's a good way to do this? Before introducing information or explaining a topic, present a video that asks a question, presents an interesting situation or ties the topic to a real-world issue. Pull a clip from the video, edit just the section you want students to see, or pause the video at a spot that leaves questions unanswered. Allow students to watch the video and give them time to absorb the information, ask questions, make predictions and/or form a hypothesis.

High Speed Video of Flipping Cats | Smarter Every Day 58 (Cute Cat vs Physics)

Hook your students' interest with a video about how and why cats always land on their feet. check out Smarter Every Day, a channel self-described as "dedicated to exploring the world using science." In High Speed Video of Flipping Cats, Dustin asks the question, "How does a cat go from feet up to feet down in a falling reference frame without violating the conservation of angular momentum?"

The video begins by dropping a stunt cat and capturing the movement in slow motion. At 1:41, the video can be paused to allow students time to discuss the experiment, make predictions and form a hypothesis.

Once students have had time to collaborate, ask questions, make predictions and form a hypothesis, you can play the rest of the video. The explanation will be much more interesting because students are now invested in the answer. They want to know if they were correct in their predictions or their stated hypotheses. In these kinds of instances, showing a clip of a video at the right time can drive inquiry that makes learning otherwise abstract concepts much more meaningful.

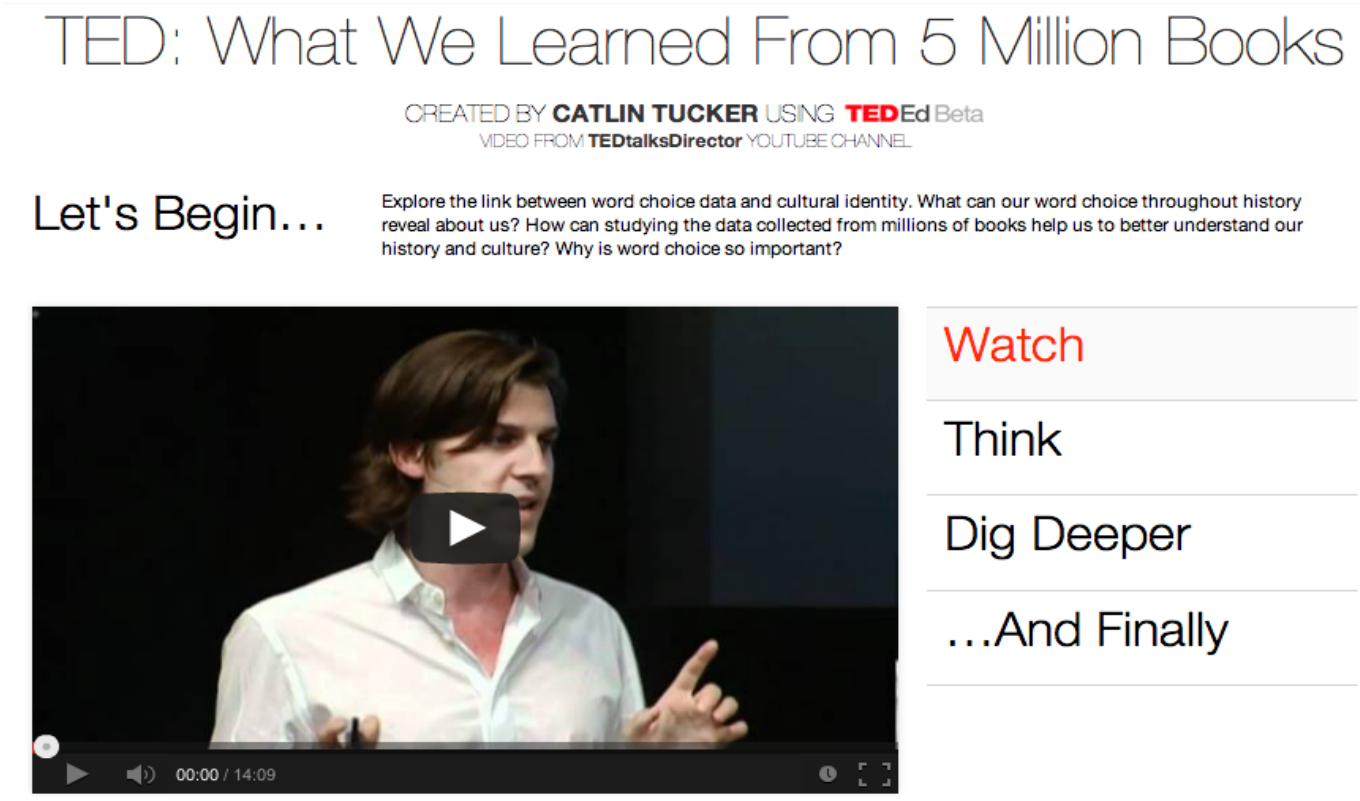
FLIP YOUR CLASSROOM: EXTEND AND ENGAGE!

Students need the most support when they're applying new concepts; ironically, this stage of learning is usually assigned for homework when students are isolated and working alone. That's why educators are experimenting with the flipped classroom model as a way to move instruction online, which then creates more time and space in the classroom for hands-on projects and collaborative group work.

In a flipped model, students watch a video, read an article or explore an online resource at their own pace. Then in class, they practice and apply what they've learned online, with the help of their teachers. Educators then design activities around students' interests or inquiries about what they're learning.

TED-Ed, a treasure trove of beautifully illustrated videos with rich content, is a great platform for trying out the flipped classroom model. Teachers can easily design an online lesson (http://bit.ly/14cw3QZ) around any YouTube video through TED-Ed.

SOME EXAMPLES:



TED Talk speakers Erez Liberman Aiden and Jean-Baptiste Michel show us how words colleceted from millions of books tell the story of our entire history and cuture. Take a look at some of the questions prompting students to "think" and "dig deeper." (http://bit.ly/W66TuJ)

Educator Jessica Wise and her cohorts have come up with a compelling Ted-Ed video called "How Fiction Can Change Reality" on how novels throughout history have helped shape real-world events. "Reading and stories can be an escape from real life, a window into another world — but have you ever considered how new fictional experiences might change your perspective on real, everyday life? From Pride and Prejudice to Harry Potter, learn how popular fiction can spark public dialogue and shape culture." Educators used the opportunity to create 173 "flips." (http://bit.ly/RgTwsJ)

The flipped classroom has been criticized for virtually replicating an already ineffective lecture model. Others point out that flipping instruction and presenting information online classifies students as consumers of information. But if done well, the flipped model can include more than just sending students home to watch online lectures. The powerful component here is creating dynamic lessons that require students to do *more* than just consume information.

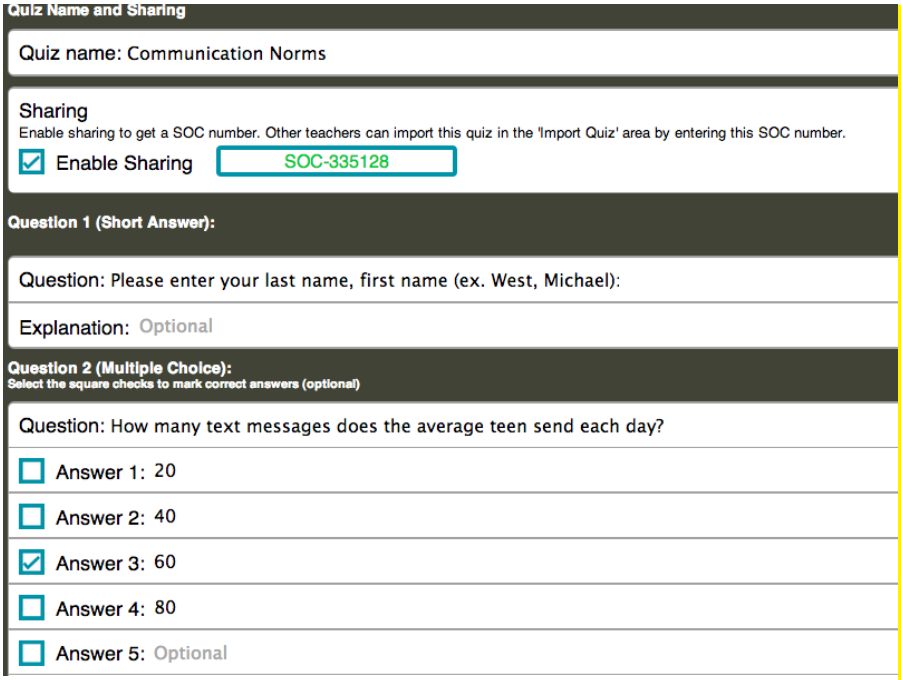
In addition to watching videos and answering questions (multiple choice and short answer), students can dig deeper with other kinds of activities that weave online work with that in the classroom to truly blend instructional media. Instead of using precious class time to deliver or transfer information, students can delve deeper into the subject with hands -on exploration, conversations in class and creative projects.

For educators who work in school districts that block YouTube, the flipped model also provides an opportunity to expose students to rich video content when students are at home.

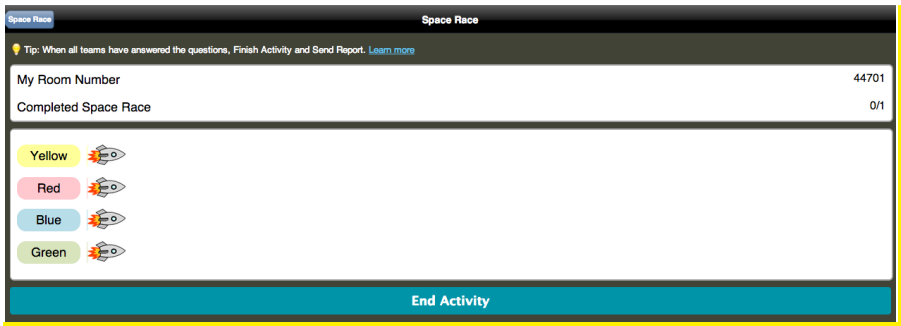
EXERCISES FOR FLIPPED CLASSROOMS

For educators who use the flipped classroom model with videos, it's important to find different ways of ensuring that students complete and understand the assignment. There are a few different ways to do this. Socrative is a student response system that teachers can use to design quizzes, activities and fun games to review information. Students use smart phones, tablets or computers to complete the activities on Socrative.

For example, below is a quiz on "Communication Norms" to review after watching a video.



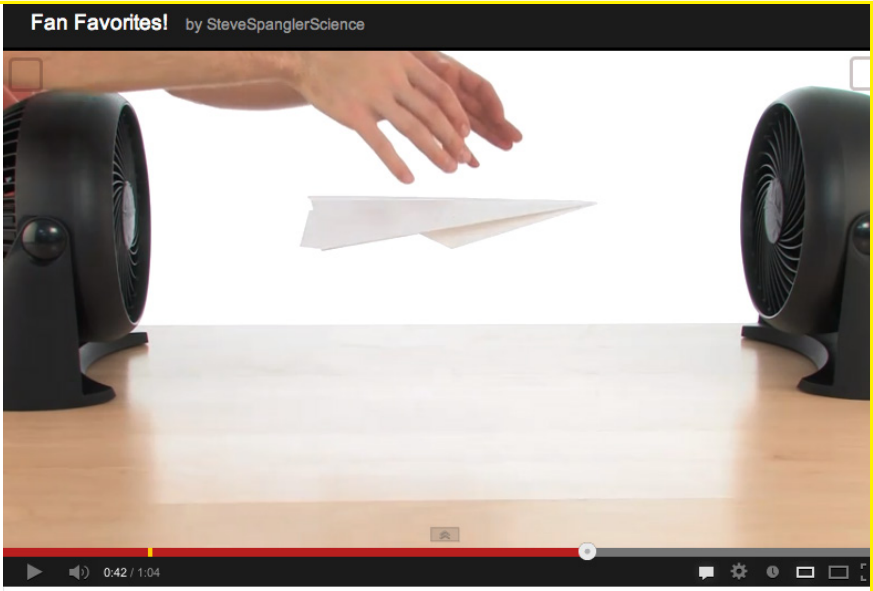
Socrative can be used as a traditional quiz and allows teachers to collect students' data in spreadsheets.



Alternatively, teachers can run a quiz as a space race, a fun competition used to group students into teams to collaborate as they complete the quiz. Each team is assigned a rocket ship that moves forward as they correctly answer questions. It's a playful, less stressful way to assess students.

DEMONSTRATE LABS, EXPERIMENTS AND ABSTRACT CONCEPTS

In schools that can't finance exciting science labs and experiments, teachers can use online science videos that connect students to some of the same experiences. Here are just a few.



Hovering Plane - Sick Science! #028

Sick Science!, found on the Steve Spangler Science Channel, is a great collection of science experiments having a wide range of complexity that students can replicate in the classroom, or even watch, in lieu of doing the actual experiment if supplies or time are constraints.

Hovering Plane Experiment: Questions & Educated Guesses

After watching the hovering plane experiment on Steve Spangler Science, write one question you have about this experiment and one educated guess you were able to make about the experiment.
* Required

Name *
First and last

What question do you have about this experiment (process, principles, or variables)? *

What educated guess can you make about why this paper airplane would float in this situation? *

At the end of this science experiment, students are encouraged to use the comments field to share how they think the result happened. Alternately, teachers can collect their students' conclusions through a simple Google form.

CREATE OPPORTUNITIES FOR PUBLISHING

Using produced videos for learning has many benefits. But just as important as guiding students to watch videos, is giving them the opportunity to be creators and producers of their own videos as vehicles for learning about all kinds of subjects. Self-publish sites like YouTube and Vimeo provide a global audience for students' multimedia projects, giving their work another layer of relevance.

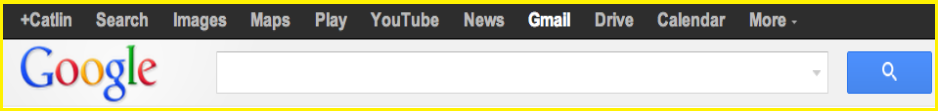
The Common Core Standards also promote the idea that students should "use technology . . . to produce and publish writing and to interact and collaborate with others." The standards also prioritize the smart "use of digital media and visual displays of data to express information and enhance understanding of presentations."

Students of all ages and grades are showing off their video-production skills:

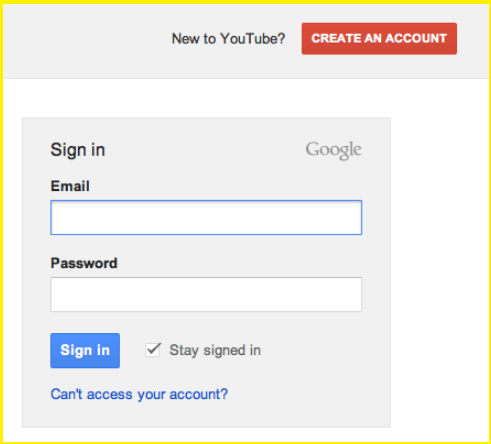
- A group of fourth grade students from Inman Elementary in Kansas share their investigation of a modern day ghost town. Their video documents their research, collaboration and exploration of Covert, Kansas. http://bit.ly/SGqNii
- The video production class at El Diamante High School created a video to provide the school a window into their class. The combination of video mastery and humor is captivating. It celebrates their hard work and skill, while exciting interest in prospective students. http://bit.ly/14clDz9
- Two ninth grade students created and published a video titled "Similes and Metaphors," which has more than 100,000 views. The purpose of the video project was to teach their peers about figurative language using popular music, but they have effectively taught a much larger audience with their creative video. http://bit.ly/9rgmBP

Students of El Diamante High produce their own captivating videos.

Not sure how to sign up for a YouTube account?



If you don't have a Gmail account, you'll need to create one. If you do have a Gmail account, sign in and select YouTube at the top of your screen to create your YouTube channel.



You can also go to directly to YouTube.com and select "Sign in" which is located in the upper right hand corner of your screen. It will take you to a screen that allows you to sign into your Gmail or "Create An Account."

Once you've created your YouTube channel, you can upload, comment and create playlists.

Find a video or collection of videos you love?
Subscribe to that content creator's channel! Click "subscribe" below the video. Once you've subscribed to a channel, you'll be notified of new videos uploaded by that content provider. You can also view your subscriptions at any time by signing into your YouTube account and clicking on the hyperlink "subscriptions."

Managing Your Videos
Once you have a YouTube account, you can manage your uploads, playlists and history by clicking on "Video Manager." You can customize your viewing experience as well as change your privacy settings.

Create a Playlist of Your Favorite Video Content
You can create a playlist of your favorite videos or compile a playlist of your own content. If you see a video you want to add to a playlist, click the "Add to" button below the video. Add the video to the appropriate playlist and continue searching for related videos.

Create a Playlist of Your Uploaded Videos
If you want to create a playlist of your own uploaded videos, click "Video Manager" and select "Playlist." Click "New Playlist" to give your playlist a title and description. Select the uploaded videos that you want to add to your personal playlist.

Get More Out of Your YouTube Search
When you search keywords to find the perfect YouTube video, click "Filters" below the search box to refine search results. The filter capability will allow you narrow your search by date, result type, duration and additional features like closed caption or creative commons.

TEN GREAT EXAMPLES OF EDUCATIONAL VIDEOS

YouTube has by far the biggest collection of self-published videos online. We've asked the staff to curate ten of the best examples of educational videos on the site. Here's what they came up with.

SOPA and PIPA
This Khan Academy video explains the meaning behind the **Stop Online Piracy Act** and the **Protect IP Act**, both of which are controversial online piracy legislation.
http://bit.ly/wiC9xv

Does wearing a hat keep you warm while dancing naked?
Although this video is about heat distribution, it can also be used to teach percentages.
http://bit.ly/Y4I5Wi

The Difference between the United Kingdom, Great Britain and England Explained
The title explains it all, but this video will help you correctly refer to the different parts of the United Kingdom.
http://bit.ly/Ze25UL

What if the Earth Were Hollow
Two amazing YouTube EDU creators, VSauce and Minute Physics, collaborate to answer this hypothetical science question
http://bit.ly/OkbdDp

Holden, J.D., and the Red Cap: The Catcher in the Rye Part 2
John Green discusses J.D. Salinger's Catcher in the Rye and explores how Salinger's war experience, educational background and romantic life inform the events of Holden Caulfield's life.
http://bit.ly/YGOSnD

How Simple Ideas Lead to Scientific Discoveries
This is the most-watched video for the TED-Ed channel in its lifetime. Adam Savage, best known for Mythbusters fame, explains how some of the most fundamental discoveries in science came from simple and creative ideas about solving problems.
http://bit.ly/Au54f0

Naked Science: Birth of the Solar System
This National Geographic video explores the far from peaceful birth of the Solar System.
http://bit.ly/1rwrPm

The Biggest Spiral Galaxy - Sixty Symbols
This video examines why NGC 6872 was named the largest spiral galaxy observed.
http://bit.ly/VRGnGR

Iron for Breakfast - Sick Science!
This cool Steve Spangler science experiment shows you how to test for iron levels in your morning cereal.
http://bit.ly/13lXWxp

The Scientific Power of Thought
ASAP Science explores how imagination and action influence each other.
http://bit.ly/VtUu8l

MindShift

Teachers' Guide to Using Videos

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EDITED BY
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p. 9 Smarter Every Day/High Speed Video of Flipping Cats