Building a K12 STEAM Flipgrid Community

K12 Flipgrid integration guide

How can Flipgrid enhance STEAM classes?

One of the major goals of STEAM is to help students communicate effectively. Educators often report wanting to help students develop voice in order to communicate verbally what they have learned. Unfortunately, many educators have trouble finding ways to incorporate this type of instruction into their lessons. [1] Flipgrid is designed to do just that -- give students a fun and creative avenue to develop voice and provide educators with a simple way to integrate it in their classroom. With each video creation, students consider how they are perceived, the content of what they have shared, and are given opportunities to make changes in response to feedback. Through this process, Flipgrid helps students become stronger communicators and involved digital citizens.

Introducing Students to the Social Aspect of Flipgrid

Grades K-5

Young students typically have little experience communicating ideas to a larger audience. Flipgrid gives them both the opportunity to develop voice and to learn how to present themselves online. Repeated experience using Flipgrid increases their feelings of social connectedness and improves academic performance. [2] Even the youngest students have the opportunity to participate as digital citizens, and Flipgrid provides a safe environment to begin learning how to interact online. When encountering Flipgrid for the first time, young students need to know that this is a safe space where creativity is encouraged so that they can develop confidence with continued use of Flipgrid.

Grades 6-8

Many students in middle school feel especially sensitive to the evaluations of their peers (we all remember this), but those who feel supported by educators and their peers perform better academically. [3] Even though students may have experience with posting videos, the idea of their videos being viewed by other students may make them uncomfortable; therefore, several uses of Flipgrid may be needed before students feel more confident in their use of voice. It may be especially important to remind students that they can do as many takes as they want before posting their video. Gaining confidence in self-expression and the respect of others is important for this age group.

Grades 9-12

Students in high school may already be regular users of social media like Snapchat, Instagram, Facebook, or Twitter. The first few times students use Flipgrid, they may feel uncomfortable because the topics that are discussed on Flipgrid are likely different from the topics students voluntarily post on social media. For this reason, Flipgrid is a valuable tool to help students learn to share their thoughts on important topics. Additionally, educators may open their grids to students in other locations around the world. Open grids help students learn to respect community voice, gain a deeper understanding of citizenship, and experience a wider diversity of perspectives.

Regardless of the age of your students, one of the best ways to help students feel at ease with Flipgrid is to model it yourself by creating a video to introduce the topic and record the first video in your topic to share your thoughts.

When are you starting to use Flipgrid?

Beginning

If you want to use Flipgrid from the very beginning of the class, you can actually start using Flipgrid before your first meeting. Invite the students to introduce themselves on Flipgrid or use Flipgrid to gauge students' knowledge and experience on the general course content.

Middle

Adding Flipgrid in the middle of a class is a great way to add variety and energy to material. You may want to use Flipgrid as a way to gauge how students are feeling about the class and to gather suggestions for where they would like things to go in the future. Flipgrid can help students practice describing what they learned, explain how what they learned relates to their own experiences, and indicate areas where they need clarification or additional resources. This is a great time for students to use their voice to connect ideas to their own experiences.

End

Even if you are at the end of a class, Flipgrid can be a powerful tool to invite students to share what they learned over throughout the class and to make suggestions for improvements. Encourage students to be creative in their responses and collaborate with others both inside and outside the classroom.

Timely Uses of Flipgrid

Course Introductions

As previously mentioned, for those of you who are planning to use Flipgrid in a class that hasn't started, videos are a great way to have students introduce themselves in advance of the class. Flipgrid is also a positive avenue to gauge interest and knowledge in a unit or lesson that you are about to introduce. Sometimes Flipgrid is more about finding out what students don't know and what they would like to know, rather than it is a report on what they have already learned.

One time Uses of Flipgrid

1. Check in on how students are doing, what they are learning, how they are feeling, or how they want to improve and move forward.
2. Evaluate the end of a unit or project.

3. Gather opinions on a major event or specific holiday.
4. Encourage student voice by asking students to make connections to personal experiences.

Ongoing Uses of Flipgrid

Flipgrid can be used every day or multiple times a day if students have frequent access to technology. Educators who use it every day are likely to use it as a part of regular assignments. They may use it to find out what students know at the beginning of a unit, to help students dive deeper into explaining and applying the content in a myriad of creative ways, or to evaluate the content at the end of the unit. Frequent users may also use Flipgrid as a way to start the day by involving every student in a discussion. Educators could feature a different student's response every day. In order to take advantage of the active social nature of Flipgrid, frequent users can allocate time for students to respond to each other's Flipgrid responses, either face-to-face or on the grid. Educators might also encourage students to post their own questions and topics to Flipgrid to start new conversations. Now is the time to think more critically about how you can connect Flipgrid to the content and purposes of your classroom.

Example Topics, Questions, and Themes Mapped to specific Learning Techniques

1. Make it Personal [4]

- Given that the STEAM curriculum is usually organized around broad topics like transportation or power and energy, ask students to choose subtopics under those umbrellas with which they have personal experience.
- In personally relevant situations under the broad umbrella chosen by the instructor, rather than adding, multiplying, or modeling the performance of random objects, ask students to add and subtract the energy costs of using buses vs. cars for school transportation. Similarly, students could measure the size or volume of objects that can be used for transportation to discover which can transport the highest number of people when considering the cost.
- Encourage students to consider how current science content might inform our understanding of a topic (such as the renewability and availability of fuel sources). Then students could think of how changes in the design of transportation might improve its use and aesthetic appeal.

2. Invite Comparison [5]

- Within each broad topic, have students compare mathematical differences between alternative approaches to things like forms of communication, differences in costs, availability, popularity, etc.
- In considering the effects of different forms of communication, encourage students to compare the purpose of the communication form, the type of content shared, and the scientific evidence regarding the effects of frequent use.
- Instruct students to compare the functionality of different versions of products in terms of ease of use, simplicity vs. complexity of design, and aesthetic appeal.

3. Find Meaning [6]

- Recommend that students choose subtopics that are not only personally relevant, but are problems that they can personally or collectively help address.
- Encourage students to propose a new device to solve a problem they regularly encounter.
- Help students choose scientific questions that matter to them and then guide them in taking steps to investigate those questions.
- Ask students to discuss the process of discovering answers in as much detail as possible.

4. Be Current [7]

- Encourage students to use current events and holidays as stimuli to prompt the choice of a unit.
- Ask students to investigate current events like global poverty, a country's civil war, famine, a political election, a new technological advance, or a hurricane -- all topics for which there are mathematical, technological, engineering, artistic, and scientific angles.

5. Use Visuals [8]

- Encourage students to use objects, graphs, written equations, and spreadsheets to display results and to help students visualize the mathematical process being described as simply and as beautifully as possible.

6. Collaborate [9]

- Encourage students to work together on projects that require several steps, such as collecting data, or in situations where students are doing something new.

Grades K-5 Topics, Questions, and Themes [10] [11] [12] [13] [14] [15]

1. Make it Personal

- Encourage students to choose a work of scientific non-fiction from the school library and describe it along with its illustrations.
- Ask students to choose a favorite or unusual plant or animal and describe it using all five senses.
- Rather than counting, adding, subtracting, or multiplying random objects, instruct students to use favorite foods or toys as objects; similarly, students could add or subtract things that they regularly buy or want to buy.
- Have students describe how they use math to solve problems that they face.
- Invite students to build three-dimensional versions of their favorite things and describe the building process and geometric properties of the object.

2. Invite Comparison

- Ask students to compare differences between two books or articles on the same scientific topic.
- Invite students to describe relationships between scientific ideas, including differences and similarities and cause and effect.
- Ask students to describe how scientific thinking has changed over time.
- Encourage students to compare differences between two and three-dimensional objects, explain differences between multiplication and division, or compare sizes of fractions.

3. Find Meaning

- Recommend that students choose their own scientific topics to investigate, or ask and answer "Who? What? When? Where? Why? and How?" in response to an important scientific topic.
- Ask students to write story problems to help explain how to make a favorite recipe.
- Invite students to solve a design or engineering problem that is currently facing the class.

4. Be Current

- Encourage students to describe and study plants and animals that are currently active in their environment.
- Rather than counting, adding, or subtracting random objects, ask students to use objects that are related to an upcoming holiday or current event.

5. Use Visuals

- Encourage students to design and describe a diagram of how something works; include models, graphs, illustrations, and living objects to add to scientific explanations.
- Ask students to build and decompose geometric objects and narrate the process.
- Invite students to hold up cards with the mathematical problem written out and devote the narration of the video to describing the process by which the problem was solved.
- Recommend that students display different ways of measuring an object's length, weight, volume, and area.

6. Collaborate

- Instruct students to collaborate in doing experiments, designing products, developing proofs or examples, or decoding and then putting the pieces of a complex object back together.
- Collaborating is a good idea when students are starting a new topic that they don't feel entirely comfortable with yet.

Grades 6-8 Topics, Questions, and Themes

1. Make it Personal

- Rather than focusing specifically on the content of the course, have students focus on understanding the scientific method itself applied to questions that are of personal interest to them.
- Ask students to describe something that they previously believed to be true in science, but that evidence has contradicted.
- Rather than just using abstract numbers, ask students to use personal experiences in calculating interest, taxes, and tips on personal purchases.
- Recommend that students use personal examples in discussing the central tendency and variability of a population.

2. Invite Comparison

- Encourage students to compare the differences between information gained from previously published scientific experiments and simulations conducted in class.
- Invite comparisons between facts, reasoned judgment based on research, and pure speculation.
- Ask students to compare the validity of information gained from different sources such as experiments, simulations, videos, online sources, textbooks, and other texts.
- Instruct students to compare how ratios and rates relate to multiplication and division or to compare differences between two populations in central tendency and variability or compare two and three-dimensional objects using cross-sections.
- Encourage students to compare solutions to engineering-based problems by considering the limits of available resources.

3. Find Meaning

- Let the class decide on a scientific question that is of interest to them (and related to class material), and then guide them through the entire scientific process.
- Ask students to choose problems that are meaningful to them and find fractions and decimals that are related to describing the problem.
- In trying to solve design problems, ask students to consider how previously learned material might suggest limits to the success of proposed solutions.

4. Be Current

- Have students consider and evaluate the evidence related to current science controversies (like global warming, vaccinations, or causes of cancer), and develop a coherent resolution to the controversy noting when the evidence does or does not line up with the proposed explanation.
- Encourage students to explain current contexts in which negative numbers occur (such as temperatures below zero or amount owed).

5. Use Visuals

- Recommend that students display relationships between variables using flowcharts, diagrams, models, graphs or tables.
- Encourage students to graph proportional relationships and describe those graphs verbally.
- Instruct students to create graphs displaying linear relationships.
- Invite students to analyze two-dimensional objects in regards to distance, angles, rotations, and dilations.

6. Collaborate

- Encourage students to work together to design and conduct an original experiment including random sampling and random assignment.
- Collaboration may be especially helpful if students are starting a new topic that they don't feel entirely comfortable with yet.

Grades 9-12 Topics, Questions, and Themes

1. Make it Personal

- Have students think of situations they encounter that are affected by the current science content.
- Invite students to explain the process by which a scientific discovery was made and the extent of the impact of that one discovery.
- Encourage students to explain a situation in which their prior beliefs were contradicted by scientific evidence.
- Rather than using abstract numbers, ask students to find ways to quantify the success of someone they admire (batting averages, number of downloads, income, etc.).
- Ask students to use geometry to estimate the amount of materials required to renovate their bedroom.

2. Invite Comparison

- Have students compare relationships between key terms from their text.
- Invite comparisons between the author's claim and the evidence being used to support the claim.
- Instruct students to compare situations where a scientific principle applies to the situations where the scientific principle fails to apply.
- Ask students to compare rational and irrational numbers, linear and exponential models, or laws of sines and cosines.
- Encourage students to discuss the relationship between algebraic equations and geometric curves.

3. Find Meaning

- Let the class decide on a scientific question that is of interest to them (and related to class material), and then guide them through the entire scientific process.
- Rather than learning statistics using abstract problems, ask students to choose an issue that matters to them, randomly sample people affected by the issue to collect data,

analyze that data, and present the results in terms of correlation coefficients and regressions.

4. Be Current

- Ask students to consider and evaluate the evidence related to current science controversies like global warming, vaccinations, or causes of cancer, and to develop a coherent resolution to the controversy, noting when the evidence does or does not line up with the proposed explanation.
- Invite students to model solutions to current problems like predicting how many emergency supplies are needed after a flood in their community, analyzing the risk of terrorism, or predicting the outcomes of an upcoming election.

5. Use Visuals

- Have students display relationships between variables using flowcharts, diagrams, models, graphs or tables.
- Rather than just talking about results, ask students to display graphical solutions to equations and describe the process by which the graph was generated.
- Encourage students to use diagrams and spreadsheets to display mathematical models, and display geometric curves that result from the solution to an algebraic equation.

6. Collaborate

- Ask students to collaborate on designing an experiment, collecting the data, statistically analyzing the data, and presenting the results on Flipgrid.
- Encourage students to design a product and consider its size, cost, function, and durability.
- Collaboration may be especially helpful if students are starting a new topic that they don't feel entirely comfortable with yet.

Example Social Feedback (Assessment) [11]

1. Building feedback -- provide feedback that helps move students toward the next level of critical thinking on a topic.
2. Highlight student videos in class -- every day or after every use of Flipgrid, be sure to show a few example videos in class and have students discuss the videos and provide feedback.
3. Encourage students to provide feedback on Flipgrid in response to other students' videos on the grid. Students can then respond to those responses, creating response chains that continue growing on interesting topics. Encourage students to keep those conversations going!

4. Students can also evaluate their own work in a Flipgrid video by discussing what they would do differently if given the opportunity to repeat the project.
5. Celebrate excellent videos by embedding them on your classroom website or sharing them with the broader community through other social networking sites, school organizations, or parent organizations.

Common Core Standards and Next Generation Science and Engineering Practices Alignment

We are giving you just a few of many standards that could be met using Flipgrid. Once you start using Flipgrid, you will find many ways Flipgrid can help meet standards in your classroom.

1. Standards that align well with "Make it Personal"

- **CCSS.ELA-LITERACY.CCRA.SL.1**
  Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- **Asking Questions and Defining Problems**
  Students at any grade level should be able to ask questions of each other about the texts they read, the features of the phenomena they observe, and the conclusions they draw from their models or scientific investigations. For engineering, they should ask questions to define the problem to be solved and to elicit ideas that lead to the constraints and specifications for its solution. (NRC Framework 2012, p. 56)

2. Standards that align well with "Invite Comparison"

- **CCSS.ELA-LITERACY.RST.6-8.8**
  Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*.
- **CCSS.ELA-LITERACY.RST.6-8.9**
  Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- **CCSS.ELA-LITERACY.RST.9-10.9**
  Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

- **Constructing Explanations and Designing Solutions**
  The goal of science is the construction of theories that provide explanatory accounts of the world. A theory becomes accepted when it has multiple lines of empirical evidence and greater explanatory power of phenomena than previous theories. (NRC Framework, 2012, p. 52)

  Asking students to demonstrate their own understanding of the implications of a scientific idea by developing their own explanations of phenomena, whether based on observations they have made or models they have developed, engages them in an essential part of the process by which conceptual change can occur. In engineering, the goal is a design rather than an explanation. The process of developing a design is iterative and systematic, as is the process of developing an explanation or a theory in science. Engineers' activities, however, have elements that are distinct from those of scientists. These elements include specifying constraints and criteria for desired qualities of the solution, developing a design plan, producing and testing models or prototypes, selecting among alternative design features to optimize the achievement of design criteria, and refining design ideas based on the performance of a prototype or simulation. (NRC Framework, 2012, p. 68-69)

3. Standards that align well with "Find Meaning"

- **CCSS.ELA-LITERACY.CCRA.R.2**
  Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
- **CCSS.ELA-LITERACY.CCRA.W.7**
  Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- **Engaging in Argument from Evidence**
  The study of science and engineering should produce a sense of the process of argument necessary for advancing and defending a new idea or an explanation of a phenomenon and the norms for conducting such arguments. In that spirit, students should argue for the explanations they construct, defend their interpretations of the associated data, and advocate for the designs they propose. (NRC Framework, 2012, p. 73)

4. Standards that align well with "Be Current"

- **CCSS.ELA-LITERACY.CCRA.R.7**
  Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- **Obtaining, Evaluating, and Communicating Information**
  Any education in science and engineering needs to develop students' ability to read

and produce domain-specific text. As such, every science or engineering lesson is in part a language lesson, particularly reading and producing the genres of texts that are intrinsic to science and engineering. (NRC Framework, 2012, p. 76)

5. Standards that align well with "Use Visuals"

- **CCSS.ELA-LITERACY.RST.6-8.7**
  Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6-8 texts and topics*.
- **CCSS.ELA-LITERACY.RST.11-12.7**
  Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

6. Standards that align well with "Collaborate"

- **CCSS.ELA-LITERACY.CCRA.SL.1**
  Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- **CCSS.ELA-LITERACY.CCRA.W.6**
  Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
- **Asking Questions and Defining Problems**
  Students at any grade level should be able to ask questions of each other about the texts they read, the features of the phenomena they observe, and the conclusions they draw from their models or scientific investigations. For engineering, they should ask questions to define the problem to be solved and to elicit ideas that lead to the constraints and specifications for its solution. (NRC Framework 2012, p. 56)

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