Introduction to Tinkercad

This is an optional introductory lesson to introduce the 3D modeling platform Tinkercad. If you intend to use Tinkercad in this lesson and you and your students are new to it, then we strongly encourage you to complete the activities in this lesson first as the teacher and then to adapt it to fit the needs of your students.

Resources and Materials

- WebApp: "Tinkercad" (https://tinkercad.com)
- YouTube Video: "17 Incredible 3D Printed Objects," Talltanic, October 3, 2016 (https://youtu.be/FSu19nz7NlE)
- YouTube video: "How 3-D-Printed Prosthetic Hands Are Changing These Kids' Lives," *National Geographic*, December 26, 2016 (https://youtu.be/Cl8ijPGEKO8)
- YouTube video: "Dam Break Simulation," Flow-3D, September 17, 2018 (https://youtu.be/sbzruH2DD6U)
- Website: Tinkercad, "Introduction to Primitive Shapes" (https://www.tinkercad.com/learn/overview/OXPM7A5IRXTLYOA;collectionId=OY5L5E8IRXTI47Z)
- Website: Tinkercad, "Direct Starters" (https://www.tinkercad.com/learn/project-gallery;collectionId=OPC41AJJKIKDWDV)
- Website: Tinkercad, "Let's Learn Tinkercad!" (https://www.tinkercad.com/learn/overview/O8XV0X1IRXTXGIH;collectionId=OY5L5E8IRXTI47Z)

Teacher Preparation to Create a Tinkercad Account

- Go to the website https://tinkercad.com to sign up for a teacher account.
- Indicate that you are a teacher (either during the signup process or by modifying your profile).
- Go to **Classes** and create a new class.
- **Add students** to your class (they can then log in with this nickname without creating an account).
- Share the **class code** link with the students and have them log in with the nickname you assigned them.

Launch (15 minutes)

- Ask students what they know about using computers to create 3D models, designs, and/or animations. If they are unfamiliar with these terms, consider using an excerpt from one of the following videos:
  - YouTube Video: "17 Incredible 3D Printed Objects," Talltanic, October 3, 2016 (https://youtu.be/FSu19nz7NlE)
  - YouTube video: "How 3-D-Printed Prosthetic Hands Are Changing These Kids' Lives," *National Geographic*, December 26, 2016 (https://youtu.be/Cl8ijPGEKO8)
  - YouTube video: "Dam Break Simulation," Flow-3D, September 17, 2018 (https://youtu.be/sbzruH2DD6U)

Explore (30 minutes)

- Explain to students that today you'll be learning to use a program called Tinkercad, which is an introductory 3D modeling platform. Provide time for students to complete some or all of the activities below. Note: students will be prompted to log in and can use ***Students, join a Class*** to access the activities.
  - **Introduction to Primitive Shapes:** This activity introduces students to the platform and shows how basic shapes can be combined in different ways to make more complex objects. A YouTube video is also available about the use of 3D models in *Star Wars: The Force Awakens* (https://www.tinkercad.com/learn/overview/OXPM7A5IRXTLYOA;collectionId=OY5L5E8IRXTI47Z)
  - **Direct Starters:** Introduces each of the Tinkercad tools (https://www.tinkercad.com/learn/project-gallery;collectionId=OPC41AJJKIKDWDV)
  - **Let's Learn Tinkercad!:** Provides an overview of the Tinkercad platform. This may be more appropriate for you to review or use as a demonstration tool (https://www.tinkercad.com/learn/overview/O8XV0X1IRXTXGIH;collectionId=OY5L5E8IRXTI47Z)
- As students finish the above activities, challenge them to make a simple object, such as a desk. Then see if they can make the same object in a different way (similar to the chair example in the **Introduction to Primitive Shapes** activity).

Summarize (15 minutes)

- Have students brainstorm the uses of 3D modeling software. Watch some of the videos listed in the Launch to generate additional ideas.