5G Learning Enhancement: Digital Product Innovation
Lesson 3

Tinkercad and 3D Printer Challenge: "Design Your Own Desk Buddy"

Overview

In this Tinkercad 3D printing challenge, students will put their creativity and design skills to the test by creating their very own "Desk Buddy" – a small, functional or decorative object designed to sit on a desk. The Desk Buddy can serve a purpose, such as holding a pencil or displaying a motivational message, or simply be something fun and uplifting like a miniature character or mascot. Students will use Tinkercad to combine at least three different shapes into a design no larger than 2.5 inches in any direction. This activity encourages design thinking, spatial awareness, and creativity while introducing students to the possibilities of 3D printing.

Enhancement Context

This Desk Buddy Tinkercad challenge fits seamlessly within the Verizon Innovative Learning Lab curriculum Digital Product Innovation Unit 2 Chapter 2 Lesson 1 (Intro to 3D Modeling) and Unit 2 Chapter 2 Lesson 2 (Intro to 3D Printing). This activity encourages students to explore how design can impact their daily environment – in this case, improving organization or boosting motivation at their own desks. It also provides a natural introduction to 3D printing workflows and an opportunity for cross-curricular integration with art, ELA, or STEM subjects.

The power of 5G technology enhances this challenge by enabling real-time collaboration, faster access to cloud-based Tinkercad projects, and immediate file sharing between students and facilitators. Students can upload, iterate, and even receive feedback more efficiently – especially in classrooms using VR/AR or remote collaboration tools that require low latency. With 5G, larger or more complex designs can be rendered and shared without lag, helping to streamline the design-to-print pipeline and enrich the overall learning experience.

What You'll Need

- Paper to Sketch Ideas
- Tinkercad
- Laptop

How It Works

1. **Define Your Purpose**

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Decide what kind of Desk Buddy you want to create:

   - Will it be functional (like holding pencils or earbuds) or decorative (like a fun character or inspiring message)?
2. **Sketch Your Idea**
   - Grab a piece of paper and quickly sketch your idea.
   - Label the parts and think about how it will stand or hold items.
   - Keep your design within 2.5" x 2.5" x 2.5".
3. **Log In to Tinkercad**
   - Go to Tinkercad.com and sign in using your class code or credentials.
   - Create a new design.
4. **Start Building**
   - Use basic shapes (box, cylinder, sphere, etc.) to begin forming your Desk Buddy.
   - Resize, rotate, and align shapes to match your sketch.
   - Combine at least 3 different shapes into your final design.
5. **Add Details**
   - Consider personal touches – eyes, a name, a quote, or even a logo.
   - Make sure all parts are connected and nothing is "floating."
6. **Check Printability**
   - Double-check that your design is:
     - The correct size (under 2.5" in all directions).
     - All pieces are grouped and connected.
     - There are no overlapping or hidden gaps.
7. **Export Your Design**
   - Click "Export" and choose the .STL file format for 3D printing.
   - Save or share your file with your teacher for review and printing.
8. **Reflect**
   - Write or discuss:
     - What inspired your design?
     - What was challenging?
     - How might you improve or expand your Desk Buddy?

Take It Further

- **Advanced Designers**
  - Challenge students to design a modular Desk Buddy with removable or interchangeable parts (e.g., a base that can hold different accessories like a pen holder, phone stand, or message slot).
- **Cross-Curricular Extension**
  - Have students write a short story or commercial about their Desk Buddy, explaining its purpose, personality, or how it helps in everyday life (ELA tie-in).
- **Real-World Connection**

- Ask students to design a Desk Buddy for someone else, like a classmate, teacher, or family member, by interviewing them to find out what type of tool or design would be helpful or meaningful.