

# 5G Learning Enhancement: Digital Product Innovation

## Lesson 3

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### 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](https://www.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**

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- 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.