

Lesson Plan

Learning Format: Blended Learning

Pathways: Multiple

Duration: 3 - 6 hours

Lesson Overview

Are you curious about how to innovate a product or idea and protect it with a patent?

Lesson Objective

Learners will explore the different stages of an invention - from an idea to patented product or service - and will apply the User Experience - [UX Design Process](#) as they design their invention.

Resources



Click the Drive icon to the left to make a copy of the accompanying PowerPoint presentation that can be used to guide students through this lesson. It incorporates video segments from the recording "NAF & Verizon Present: Your Next Invention - Inventions & Intellectual Property Panel,"

Background

National Inventors Day is a call to innovate and consider the role of intellectual property rights during the innovation phase. When learners become inventors, they have an excellent opportunity to solve real-world problems and contribute to our culture and economy.

Passion projects, particularly in STEM fields, enhance college applications by demonstrating content knowledge and transferable skills such as creativity, initiative, leadership, curiosity, and impact.

Educator Preparation

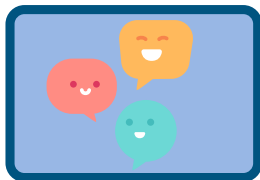
Explore these resources on innovation and intellectual property rights:

- ☒ Review Google Slides presentation
- ☒ [Exploring UX Design: From Idea to Launch & UX Design Process Graphic](#)
- ☒ [Patent Basics](#)
- ☒ [Learn How to Use the Best Ideation Methods: SCAMPER](#)

A significant consideration is pairing learners with an industry mentor to support their learning. [Guest Speakers](#) and [Virtual Work-Based Learning](#) can support educators in incorporating work-based learning into authentic projects. An excellent place to start is reaching out to the academy advisory board, industry expert, or a local postsecondary partner.

Lesson Plan

Activity: Small Group



Time 10-20 mins.

Icebreaker: Have learners answer the following questions, discuss in a small group, and then, report out to the class:

- What is intellectual property?
- Have you ever created a product that you think should be patented?
- How can you generate new ideas for product design?
- What goes into a product design?



Time: 40 mins.

- Complete the "[How to Conduct a Preliminary U.S. Patent Search: A Step-by-Step Strategy](#)" tutorial, starting with "Types of patents" and stopping at the end of Step 2
- Practice searching patents at [Patent Public search webpage](#) by entering a keyword in either the basic or advanced search pages.
- [Search for patents](#) in a basic search by:
 - Click Basic Search
 - Enter only ONE key word in Quick lookup
 - To enter more than one word, use the search boxes below. For example, a search for roller skates could look like this:



[Google's patent search website](#) may be easier for some to navigate and it could be used in combination with the USPTO's website.



Time : 20-45 mins.

Introduce the [Substitute, Combine, Adapt, Modify, Put-to-another-use, Eliminate, Rearrange](#) (SCAMPER) method for ideation. Practice applying this method to a few patented inventions from United States Patent and Trademark Office (USPTO) - [Spot the Invention](#) activity.

Lesson Plan

Activity: Learner Assignment

1. Search for an existing patent and use the patent images as inspiration to re-imagine a product by applying the SCAMPER method.
2. Produce new product images/visuals for the re-imagined invention.
3. Showcase your reimagined invention in a presentation format of your choice that:
 - Explains the purpose of the invention and how to use it to solve problems
 - List the materials used to create the product
 - Details the invention using technical terms
 - Describes the steps to obtain a patent if the invention could qualify for a patent
4. Group the learners in pairs to evaluate each other's project using the [Project Rubric](#).

Activity: Extend Learning

Authentic project learning experiences energize learners to identify passion projects and inspire them to imagine innovative solutions to real-world issues. Challenge learners to complete the [Exploring UX Design: From Idea to Launch Expedition](#).

Additional Resources

- [The Tech Terms Computer Dictionary](#)
- [Engineering Dictionary](#)
- [US Patent and Trademark Office Teens page](#)
- [Design Handbook: Engineering Drawing and Sketching](#)