

Module 4 - Design in Physics

Lesson Plan

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REVISION HISTORY

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(*) Action: C = Creation, I = Insert, U = Update, R = Replace, D = Delete

REFERENCED DOCUMENTS

ID	Reference	Title
1	2020-1-UK01-KA201-078934	IPinSTEAM Proposal
2		

APPLICABLE DOCUMENTS

ID	Reference	Title
1		
2		

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1. Title of the lesson plan

1.1 General Information

1.1.1 Brief Description

This lesson plan is focused on training for Design IP aspect. It combines some 3d design practise for designing appearance of product as well as the physics around designing a solar light.

1.1.2 Learning Objectives – Intellectual Property in STEAM topics

The learning objectives of this lesson plan are:

- To acquire understanding of what designs are.
- To train on developing a solar light system
- To practice using a 3D software tool to design the solar light appearance

1.1.3 Links to curriculum

- Physics (solar energy & calculations)
- 3d design

1.1.4 Duration

3*45' in a classroom of 20-25 students

1.1.5 Extra materials required

Laptops or PCs with network connection. About 2 or 3 students per laptop or PC. Teacher has to setup a class in Tinkercad (<https://www.tinkercad.com/>) so students can join in and use the free online environment.

1.2 Step-by-step instructions

1.2.1 Introduction or orientation

Students assume the roles of joining a hypothetical contest for the design of a solar light that will be the next top-notch item! The idea is to integrate a functionality in a design that will make it go viral.

They will be divided into teams of 2-3 persons to work on this.

1.2.2 Preparation or conceptualization

The teams first will have to study the concept of harvesting and using solar light energy, as well as become familiar with the calculations they need to do to design a valid system.

After some looking for information, they have to respond to the question:

-How do you setup a circuit of a solar panel, battery and light that does an optimal cycle?

In this phase, they have to brainstorm in their teams about what type of light they want to build. Will it be a modular light? A backyard light? An emergency torch?

After that, they will have to use their knowledge to decide on the circuit's peripherals that fit better to the purpose. They can check on a website like "Aliexpress"*** and target specific products, then take screenshots to include in a presentation and keep note of the dimensions.

Then they will dive into the design task, where according to their functions needed they have to design in the 3d software the "appearance" of the light.

****It will be good if the teacher does an introduction on things that one has to beware of at online stores like Aliexpress or others, and reinforce that the task is not about buying but just to get inspired of real products that could be components of their projects.*

After students have finished, there will be a share moment where they will present their designs, and see if there are any similarities in their designs.

1.2.3 Investigation

The next task is an investigation on how they can apply for registering their unique design. For this they will visit the registration service of the European Union Intellectual Property Office at <https://euipo.europa.eu/ohimportal/en/rcd-route-to-registration> and explore how to apply online.

Then they will prepare a presentation of what they learned, no more than 5 slides each team.

1.2.4 Conclusion

The students present their ppts with the info they gathered about applying for their design. A discussion is then held to summarize things they learned.

At the end the teacher can prompt some extra questions like:

- What is an industrial design?
- What kind of protection does an industrial design right offer?
- How long does industrial design protection last?
- What is the difference between a design and a patent?

1.3 Key questions for knowledge testing

Question 1: You have invented a new suite of chair designs that are functionally the same as other chairs, but which are made using a new machine that you have purchased that allows you to create unique forms not seen in the market before. What should you do to protect your intellectual property?

- Apply for Design Rights for all of the new designs of chair you have created.**
- Apply for a patent for the machine
- Apply for a patent for the invention of the chair designs

Question 2: Design Rights can be renewed indefinitely

-True

-False

Question 3: A design patent is a form of legal protection granted to the ornamental design of a functional item.

-True

-False