

HOLOMAKERS PROJECT

**Motivating secondary school students towards STEM careers through
hologram making and innovative virtual image processing practices
with direct links to current research and laboratory practices**

Erasmus+ KA2 2017-1-PL01-KA201-038420

Worksheet for Activity 4

Capturing light: the coins project

Team:



Activity topic: Monetary coins and money

- 1) The questions below revolve around “monetary coins and money”. Search for information online, discuss with your classmates and write down your answers/findings below.

A) What are coins used for?	
B) Do all the countries have the same coins? Review coins online.	
C) Can you name some early coins?	
D) What is a commodity? What was the problem with commodities?	
E) What metals and materials are used in coins?	
F) Other interesting facts about coins:	

2) Currency and conversion

- a) Imagine that you have 1200 euros. Identify the following countries (see table below) on the map (you can also use google maps) and convert the amount to other currencies based on the country that you are visiting each time...



Tip: Try to do the conversion manually and then confirm your calculations using the following currency converter calculator: <http://www.convertmymoney.com/>.

	Your amount of money after conversion
Poland	
USA	
Bulgaria	
Australia	
Iceland	
UK	
China	
Turkey	
Switzerland	
Portugal	
India	
Other.....	

b) Discuss in your team “What is currency?”. Document your thoughts/findings below.

3) Set up the HoloKit- Is not the HoloKit already assembled from previous activities?

Prepare the set up in order to record your coin(s). You can find the instructions here <https://youtu.be/wFbqvzraYds> and here https://holomakers.eu/wp-content/uploads/2019/01/Holomakers_holokit_ReferenceGuide.pdf

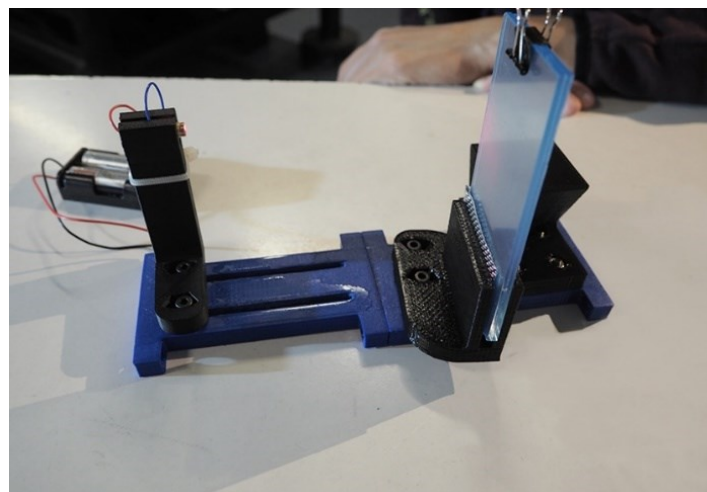


Figure 1 The portable HoloKit

4) Getting ready for physical hologram recording

a) Work in teams

Measure the minimum and the maximum height that the coin should have in order to fit the size of holographic film that is used in the HoloKit. Write your answers below.

b) Discuss with your team members

Does the texture/ materiality of the coin play a role in the holographic recording? Document your answers/thoughts below:

c) Time for physical hologram recording. Are you ready?

Note: Bear in mind that the process of holography is not always straightforward, and it takes a lot of tests and practice in order to have the best possible results.

Some general rules/tips for the physical hologram recording process	✓ / ✗
Decide where you will place the HoloKit. It should be placed on a very stable table or on the floor.	
Select the coin that you will holograph based on the discussions that you had earlier	
Check the level of the provided power to the laser beam before you start because low power levels can lead to failure during the recording process.	
Turn on the laser diode at least 5 minutes before making your hologram	
Place the object as close to the holographic film/plates as possible	
Experiment with various heights and positions by using the provided plasticine. <i>When you agree that the reflection on the holographic plates of the selected coin is the finest (that can be done), then the set-up will be ready for the recording phase.</i>	
Select the member of your team that will be responsible for a) placing the holographic film in the holographic plates and b) removing the shutter.	
Consult your teachers and do not hesitate to ask for advice and support if the process to be followed is not clear.	
Make sure that you have marked on the holographic plates the area where the holographic film will be placed...	
Place the shutter between the laser beam and the holographic plates	
Make sure that you have identified an almost dark room where you will be in order to place the holographic film between the two holographic plates	

Make sure that you have understood the process	
Have you check all the above steps? If yes...you are ready to go!	

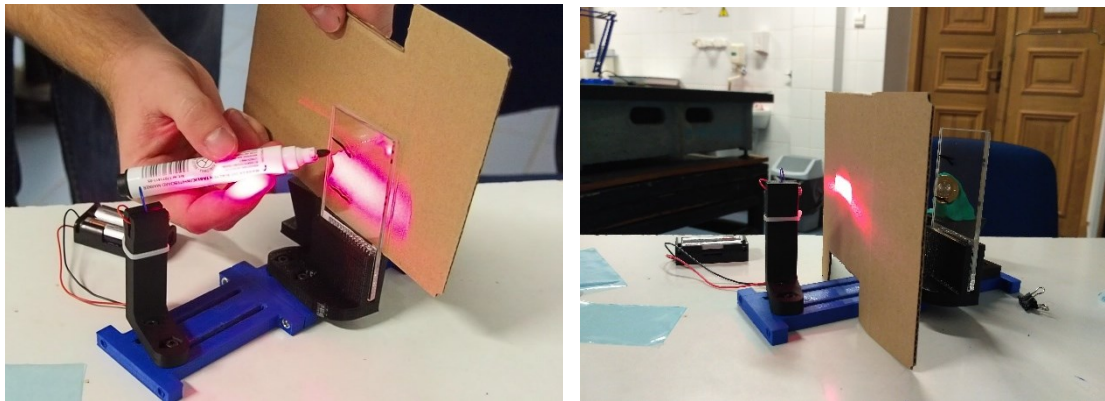


Figure 2 Marking the holographic plate (left), Placing the shutter (right)

Area for notes

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Declaration

This report has been prepared in the context of the HOLOMAKERS project. Where other published and unpublished source materials have been used, these have been acknowledged.

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