

Outline: Day 1

Description	Duration
Experience sharing	~15 mins
Ways to get magnified image	~5 mins
A1 and A2	~15 mins
Making the Setup + Discussions	~10 mins
Intro to metaStudio Platform	~15 mins

Outline: Day 2

Description	Duration
Follow up and Presentations	~20 mins
Discussion around - magnification, lens	~20 mins
Integration in curriculum?/Questions?	~15 mins

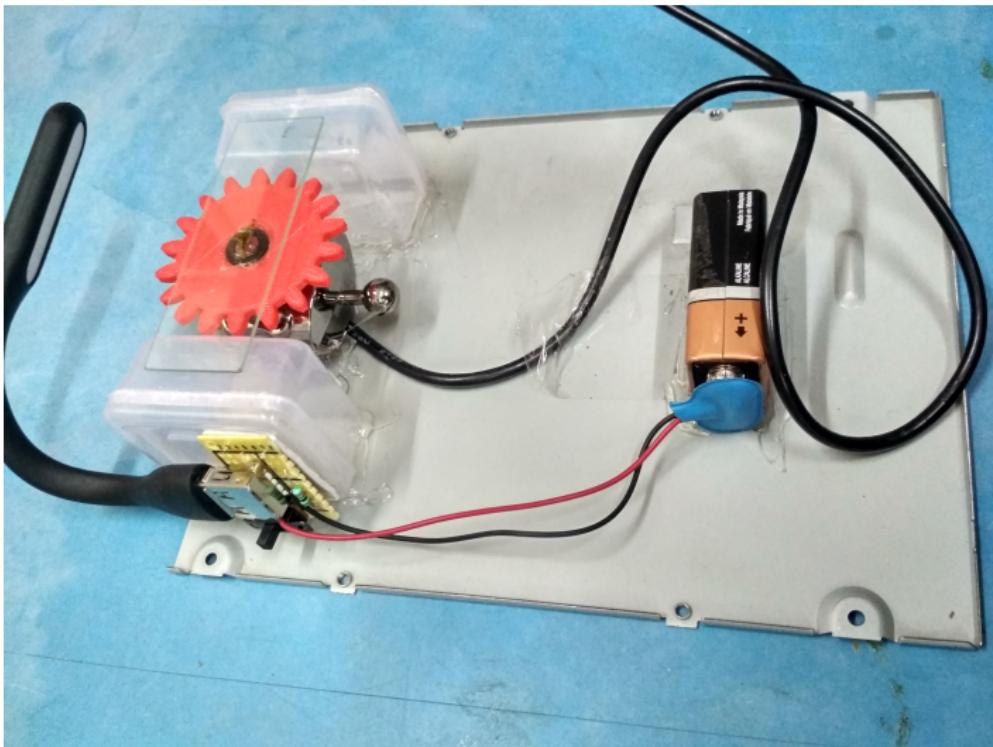
Share your experience!

1. When you think of microscopy, what are the things that come to your mind?
2. What are the investigations you have designed with the students around the theme - microscopy?
3. What are the challenges you have experienced while implementing the activity in classroom?

How to get a magnified image?

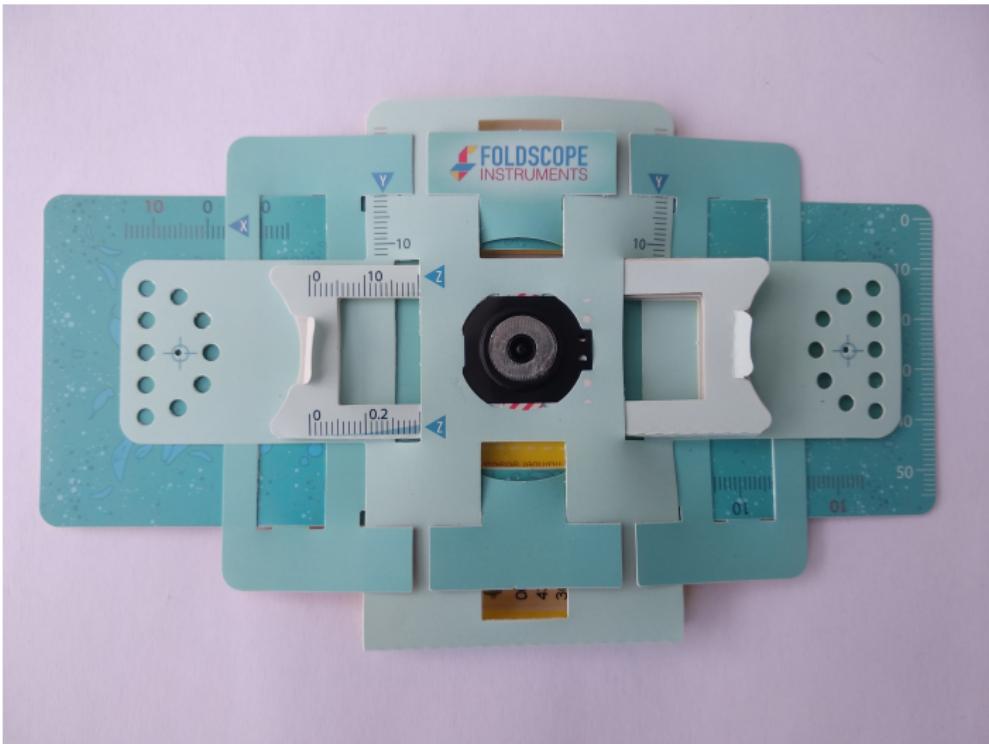
- ▶ Magnifying glass ?
- ▶ Phone camera zoom?
- ▶ Foldscope?
- ▶ WebCam based setup?
- ▶ Toy Laser Light Lens + Phone setup?
- ▶ Any other setups?

Web Camera based Microscope



For more details Link

Foldscope



Activity 1

Which is the closest distance at which you can see the sharp image of any object?

Activity 2

- ▶ Bring the object closer so that now the image appears fuzzy
- ▶ Now, put a magnifying glass near to your eyes.
- ▶ What do you observe? Does the fuzzy object's image change?
- ▶ Try to move the glass's position forward and backward between your eyes and object. What do you observe?

Activity 3 Exploring Magnifying Glass

- ▶ What is a magnifying glass?
- ▶ How does it work?
- ▶ How do you find out the magnification?
- ▶ Can you design an experimental setup to verify the magnification of your glass?
 - ▶ What tools/materials you will be using?
 - ▶ Discuss and share the design and procedure
- ▶ Share your observations Here

Converting phone into microscope



Materials

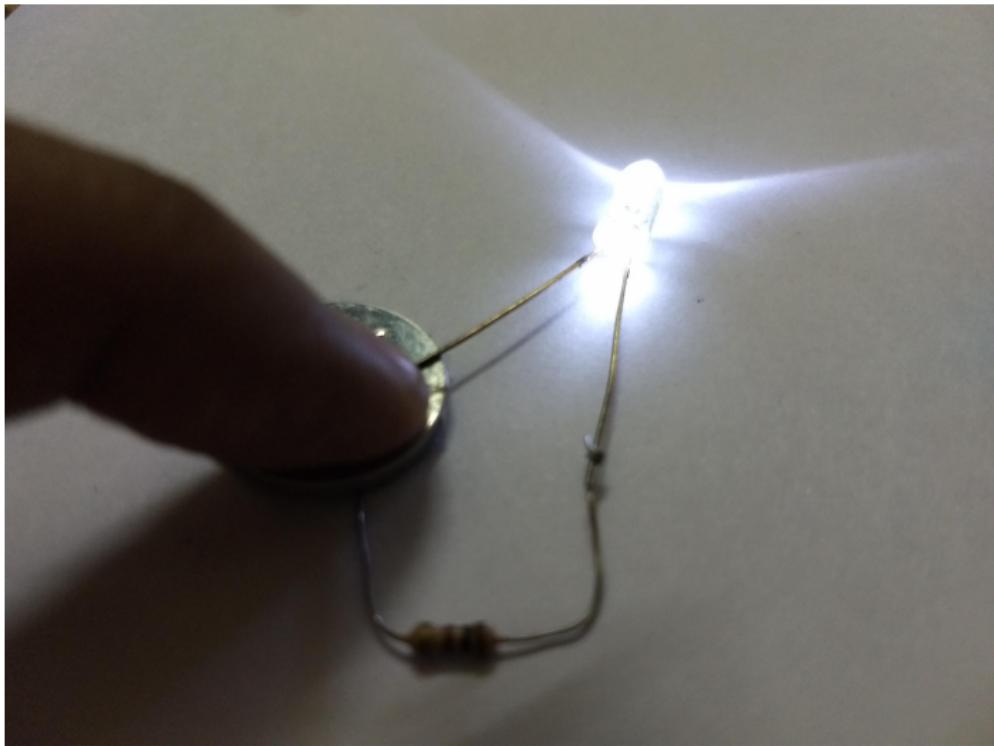


Version 1 - Lens without mount



Version 2 - Lens with mount

Light source



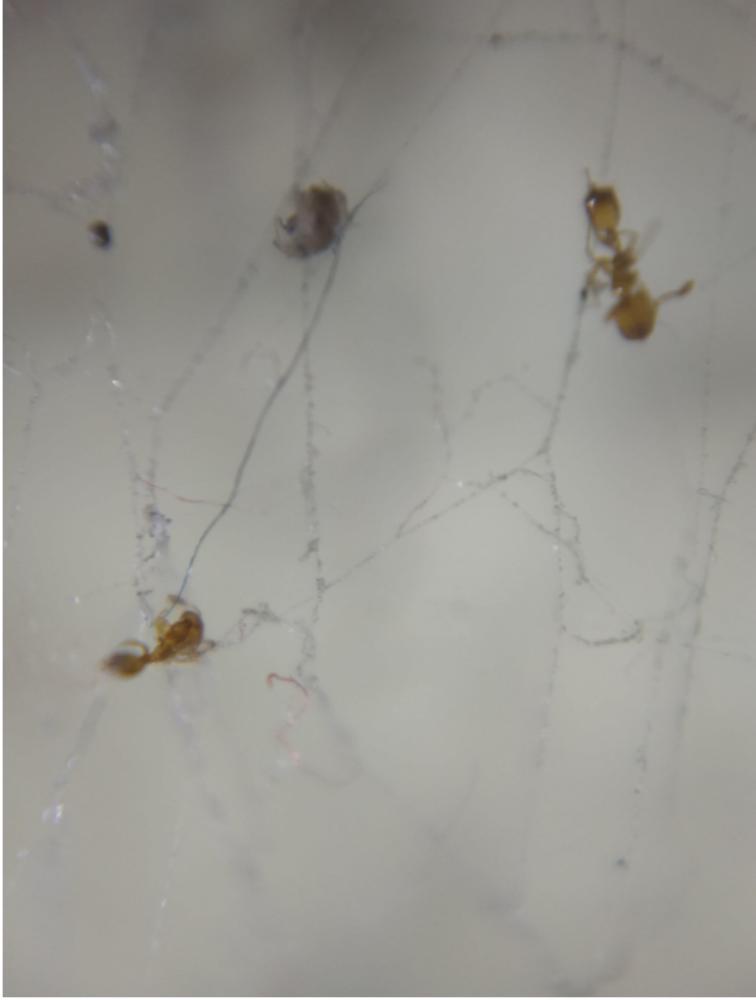
Action!



Spider



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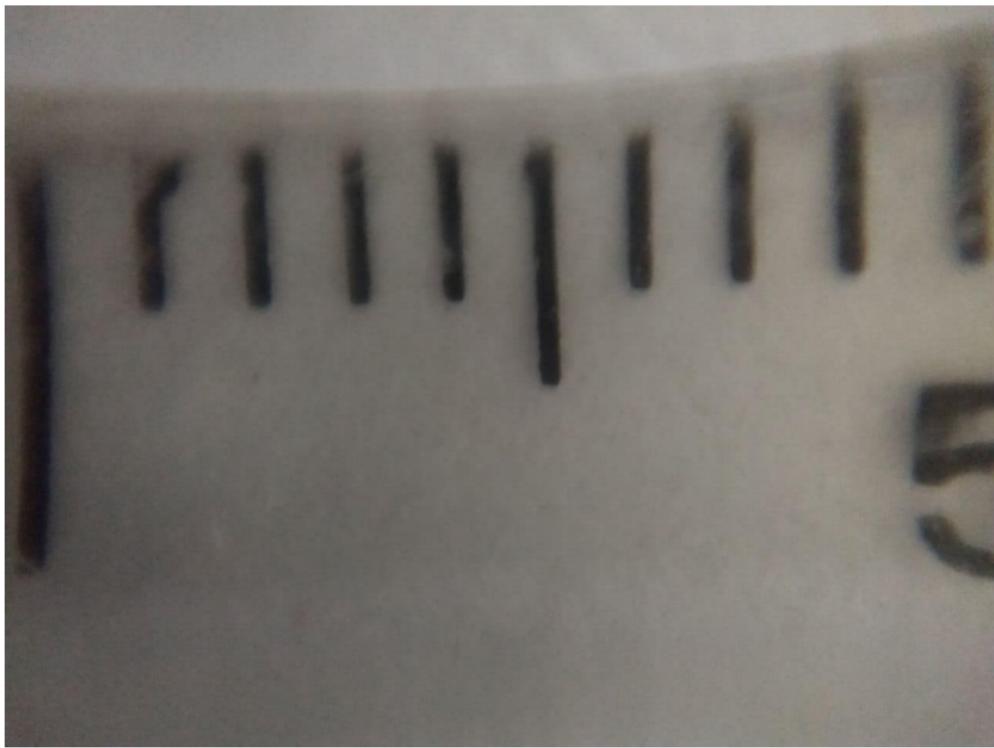
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For Friday!

I. Sign-Up

- ▶ Sign Up <https://metastudio.org/>
- ▶ Verify the account via email (check spam folder too, sometimes automated mail land in there!)

II. Activity 3 Exploring magnifying glass

- ▶ Share your observations Here

III. Plan, Make and Share!

- ▶ Make your plan! Share about what do you intend to investigate with your (lens+phone) setup?
- ▶ Sketch the design of the setup in your notebook!
 - ▶ Think about how will you design a detachable mount to hold the lens. What other modification do you plan to incorporate?
 - ▶ Which light source you will be using?
- ▶ Finally, share the image of your plan here -> [Link](#)
- ▶ Once you make your setup, do share the pictorial journey along with the things that you observed and your reflections!

Thank you!

- ▶ Have more questions?
- ▶ Find us on metaStudio:
 - ▶ Ashish Kumar Pardeshi: @Ashish_Pardeshi
 - ▶ Jude T Dsouza: @jtd
 - ▶ Ravi Sinha @ravi312