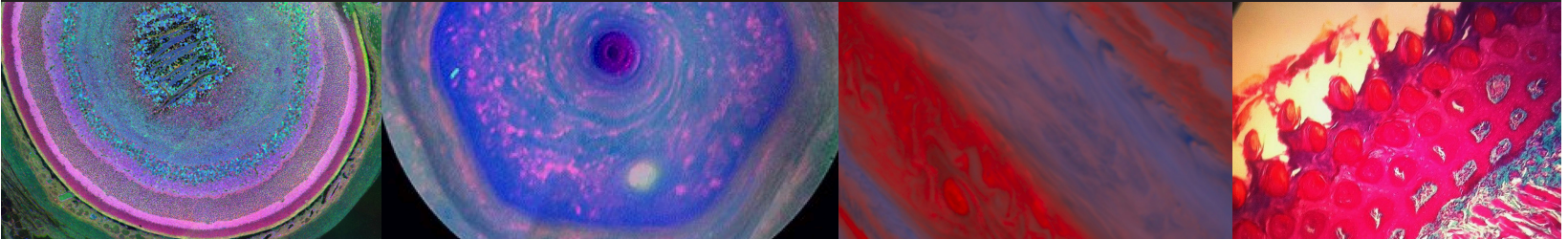


DISCOVERING YOUR WORLD IN MICRO AND MACRO



In science, scale can be difficult to judge, particularly when coming across an image of science without any proper context. We often think of the Earth as large – and it is compared to things on the human scale. Yet, a million Earths can fit inside our Sun, which is very small compared to many other objects in space. Likewise, we generally think of grains of sand as being incredibly small in contrast to experiences in our everyday lives.

Is this fascinating object something that I can hold in my hand, find under a microscope, or does it reach across the galaxy? It's important – and quite interesting – to learn about objects on every scale.

BIG IDEAS

- Size matters: things in the world come in different sizes
- Understand that both micro and macro systems can be complex and interconnected.

LEARNING GOALS

- Distinguish between the macro and micro
- Discover what types of objects are found in each scale.
- Understand that there are many scales in the world, some which we can't see with our eyes.
- Develop a greater appreciation for the interconnectedness of life across all scales and gain a better understanding of the complexity of nature and scientific principles.

DIRECTIONS

Print the science journal pages for each learner. This activity can be done outdoors or indoors.

1. If weather permits, go outside and choose 3 natural items to observe. For example: a leaf, bark of a tree, a rock.
2. Look closely at each item, observe and draw what you see.
3. Using your loupe or magnifying glass, take a closer look. Observe and draw what you see. Answer the questions provided in the journal.
4. Using the provided cards, compare the drawings and observations to the characteristics of the items in the cards.
5. Use a database like www.astropix.org to compare objects to astronomical objects
6. Build your own specimen box. Gather objects that can be viewed through a loupe add them through a divided plastic box with a lid. Objects could include, an ice cube, acorn, rocks, small flowers, grains of sand, shells, a strand of yarn, dried beans, a piece of wood

Cost:

\$15-20 package of loupes
\$7-10 plastic divided box

Time: 30 minutes

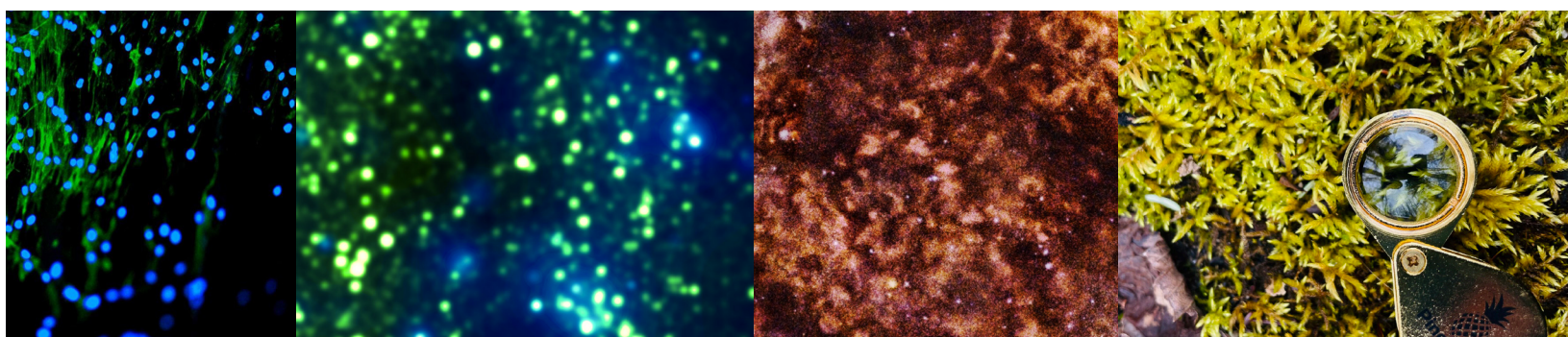
Ages: 7+

Materials:

- paper
- Loupe or magnifying glass
- pencil
- specimens (gathered or outdoor nature items) could include: an ice cube, acorn, rocks, small flowers, grains of sand, shells, a strand of yarn, dried beans, a piece of wood, a marble, a strand of hair

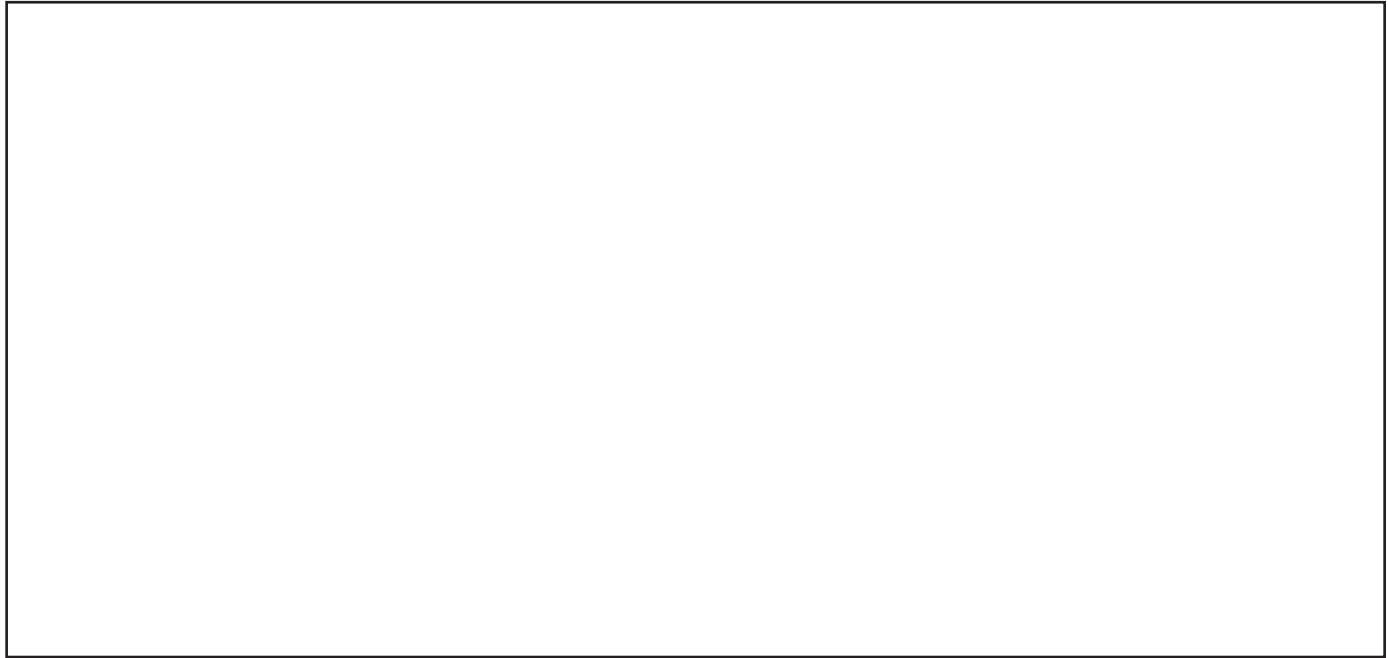


Loupe example



A CLOSE LOOK AT: _____

STEP 1: Observe & draw what you see

A large, empty rectangular box with a thin black border, intended for drawing the observed object.

STEP 2: Draw what you see through the loop

A large, empty rectangular box with a thin black border, intended for drawing the object as seen through a loop.

STEP 3: Describe

What else does it look like? What does it remind you of?

STEP 4: Compare and contrast

Does it resemble any of the provided cards? Try checking a database like www.astropix.org to find an image that resembles yours. Describe those images here:



www.astropix.org