

Sunny Marigolds/ October Flower/ Solar Dye
2017 October
1st Grade Garden Parent Outdoor Lesson #2

Objective: After a broad overview of the fall garden, this week we experiment more deeply with a bright sunny flower that we noticed last week: **the marigold**. Working in pairs, students will pick and count marigold flowers, add wool, cotton and petals into mordant-prepared* solar dye jars. They will be encouraged to make observations and predictions about plant structure, color, texture and smell. They will keep the jars on their classroom window sill to capture the sun's rays, and observe the results in about a week. They will be introduced to basic lab safety (gloves required when opening jars, goggles optional). [At the next Garden Class meeting, they will rinse out and look at what happened to their fabric samples, and they will receive a broad overview of the plant dye bed in the garden.](#)

Time/location: The entire lesson can be done in 30-40 minutes in the school garden, with take-away lab sheets if ok.

Materials: Harvested Marigold Petals (fresh/ dry possible), containers for collection, containers for petals, pre-prepped Alum/ Cream of Tartar solar dye jars, gloves, labels, clipboards, lab sheets.

Poems: *Cycle*, by Langston Hughes

Lesson:

Part 1 / Harvest the Marigolds 20min

- Kids will be teamed up in about groups of two or three. (depending on attendance), (2-3 adults)
- Ask the partners to harvest about 10 Marigolds each. [Some kids will want to collect less or more, thats ok and will create variation, to reinforce counting in 10's ask them to try to keep the number close to or under 10.](#)
- They can come back to their clipboard and answer the lab sheet questions on the number of marigolds picked by each & by team.
- Then, they will pick off the petals and place them in the 'petal' container.
- Explain: each team's prepped jars contain Mordant.* which means to 'bite' helps the dye bite into the fabric.
- [*The mordant we used contains Alum & Cream of Tartar, Alum powder is not healthy to breath, but once pre-prepped with the Cream of Tartar & water \(ask to make sure this is done correctly\) it's pretty safe. Still we have the kids wear gloves before opening their jars to get in the habit of lab chemical safety. Remind the kids not to put their hands near their mouths and faces.](#)
- After putting on gloves, they will open their prepped jars, add the fabric samples FIRST, then put in the petals- the adults will help pour in water to make sure it does not overflow- & Close Lids tightly.
- Remind the kids that they must stay on the soft grass, where the stations have been set up, so the glass jars do not break.
- Take turns carefully shaking the jars.
- Take Gloves off and answer the observe: and predict: sections of the Lab Sheet.

Part 2/ Learn About Marigolds 10min

[We only had time to talk about the Marigold being the 'flower of the sun' - can try to re-visit any of these facts next class.](#)

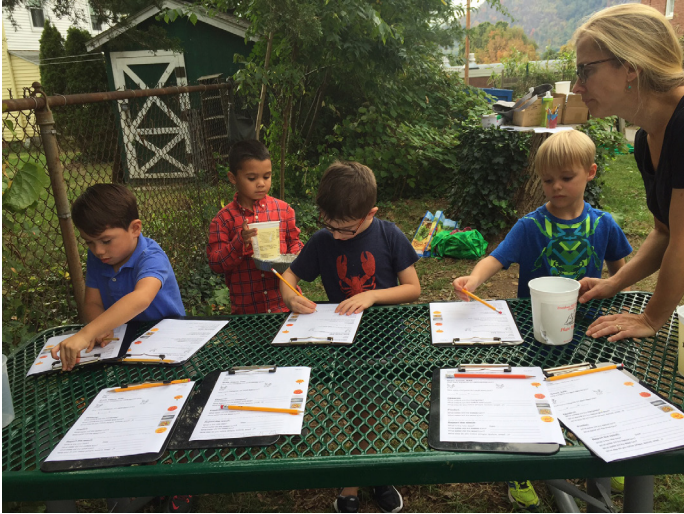
- [More interesting round-up was to ask the kids to share their observations and predictions as a group!](#)
- Gather together, talk about the symbolism of the Marigold in various worldwide cultures.
- With its intense color, the **marigold** is the **symbol** of passion & creativity. (though in other culture it is a symbol of sadness [\(maybe this is because the bright color can cheer us up when we're sad?\)](#))
- The yellow and orange **marigolds** **symbolize** the **sun** and light, the beauty and warmth of the rising sun
- Different Marigold varieties are surprisingly useful aside from being a symbol of joy.
- Many Tagetes varieties offer a tarragon or mint like taste to their leaves, Calendula flowers are used as salad ingredients & tea.
- Some are edible & soothing and some are toxic/irritant , we need to learn more about ID-ing before EVER tasting, to be safe.
- Some people cook the flowers down in a fat based salve to treat skin irritation.
- The plant's odor & root hormones scare away many animals & insects from the garden, as well as killing nematodes in the soil.

Part 3/ Poem (excerpt & movement) 5min

Cycle, by Langston Hughes

[We did not have time to recite this. It felt like a nice match, because Marigolds, when harvested just below the flower receptacle will send out new blooms throughout the season. Can try to include in Part 2 of this experiment.](#)

So many little flowers,
Drop their tiny heads
But newer buds come to bloom
In their place instead.

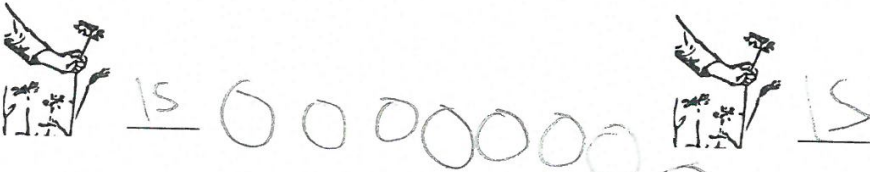




Name: Garvin Joey
Date: 10/18/17

Draw, Count, Add:

How many marigolds did **each partner** pick?



How many marigolds did **each team** pick?

15 + 15 = 30



Observe:

What **colors** are the marigolds?

At in Tish We Low

What **colors** are the cotton and wool?

Apple Wool

What else do you notice (*shape, texture, smell...*)?

8 + 8 + 8 + 8



Predict:

What **color** will the cotton turn?

Mostly yellowish

What **color** will the wool turn?

yellow



Report the result:

What is the new date?

Date:

10/18/17

What **color** did the cotton turn?

Purple and blue

What **color** did the wool turn?

Orange and blue

What else do you notice (*shape, texture, smell...*)?