

Colored Dots 2

Task Information

Grade: 4th Grade

Content: Physical Science
• IC1.14 - Mixtures

Format: Manipulative

Purpose:

- To determine the student's understanding of mixtures
- To determine the student ability to make inferences based on data collected in an experiment

Skills:

Primary: observing, interpreting data
Secondary: generalizing/infering, recording data,

Time: 8 - 10 minutes

Materials:

Teacher

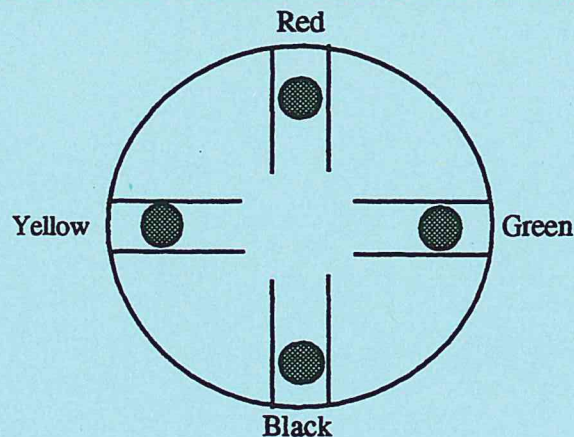
- 1 yellow water soluble marker
- 1 green water soluble marker
- 1 black water soluble marker
- 1 red water soluble marker
- filter paper, 9 cm diameter
- scissors
- 1 thin line black permanent marker
- extra prepared filter papers
- extra paper towel

Per Student

- 1 - 5 oz. clear plastic cup of water
- 1 - filter paper with colored dots
- paper towel

Preparation:

- Cut paper with 4 tabs (about 1 cm x 3 cm) as shown in the illustration. Place a different colored dot about 1 cm from the end of each of each tab. All dots should be made with water soluble markers.



2. On the clear plastic cup, draw a thin line with a black permanent marker all the way around the cup about 4 cm from the bottom of the cup.
3. The line will serve as a fill line for the water. The tabs from the filter paper should just reach the top of the water line.
4. You may have to adjust the tab cuts on the filter paper or the fill line on the clear glass.

Safety: N/A

Extensions/Modifications:

Colored Dots 1 and 3 are similar to this task.

Credit/Source:

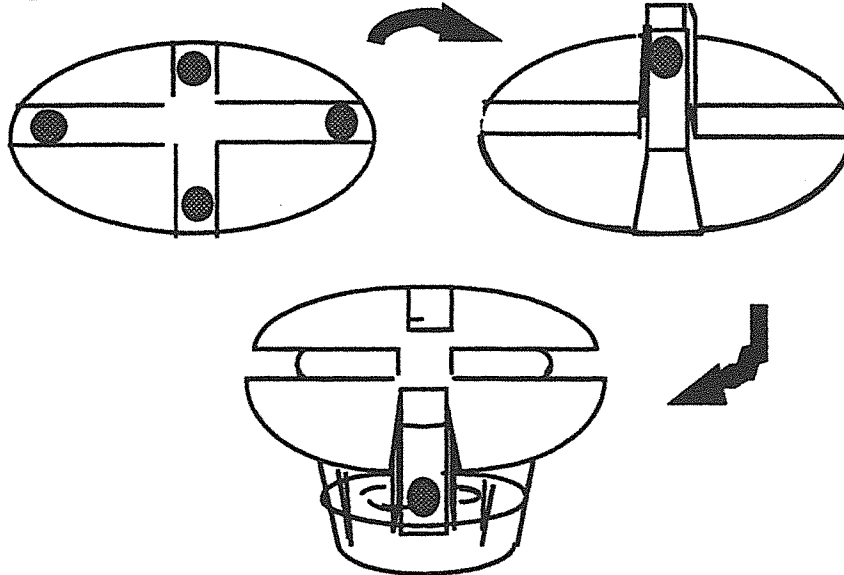
Elementary Science Syllabus Level I Supplement - p. 80

Colored Dots 2

Task: At this station you will be observing the effect of water on three dots of different colors.

Materials:

- 1 filter paper with colored tabs
- 1 cup with water
- paper towels



Directions:

- In front of you are a small cup of water and a piece of cut filter paper.
- Bend the tabs with colored dots upward as shown in the diagram.
- Next, turn the paper upside-down and place the four tabs into the small cup. Be sure the colored dots are above the water surface, but be sure that each of the tabs is touching the surface of the water.

DO NOT LIFT THE CUP!

- After about 1 minute, when the first color reaches the top of the tab, remove the paper and flatten it out on a paper towel.

Please Continue on the Next Page

1. Describe what you observed about each dot.

A. Black dot

B. Green dot

C. Yellow dot

D. Red Dot

2. Explain why the black dot acted the way it did.

Colored Dots 2 - Scoring Rubric

Maximum Score - 5 points

1A & B. Observations of dots 2 points total

Standard: The student describes what happens when water reaches each dot.

Criteria: Black dot and Green dot

- 1 point for each reasonable description of movement or change in color.

Acceptable descriptors for movement:

- | | | |
|-------------------|-----------------------|------------------------|
| • climbed up | • absorbed to the top | • smeared |
| • moved | • spread out | • moved upward |
| • smudged | • ran | • got bigger |
| • touched the top | • raised | • blurred |
| • color went up | • reached the top | • moved off the circle |

Acceptable descriptors for color change:

- changed color
- list of colors formed

*** No credit is given if the student only states the dot changed. ***

1C. & D Observations of dots 2 points total

Standard: The student describes how the yellow dot changes.

Criteria: Yellow dot and Red dot

- 1 point for each reasonable description of movement.
- See acceptable descriptors for movement above.

Acceptable descriptors for color change:

- | | | |
|----------------------|----------------|-------------------|
| • fades | • gets lighter | • color thins out |
| • no change in color | | |

*** No credit is given if the student only states the dot changed or didn't change ***

2. Reason why black dot acted the way it did 1 point total

Standard: The student explains why the black dot acted the way it did.

Criteria

- 1 point if the student explains that black is a mixture of many colors or water will separate them.

Acceptable answers:

- Black is a mixture (made up) of many colors.
- The black marker was washable (water soluble).
- All colors are part of black.
- Water separates the colors in black
- Water makes the colors in black run

*** No credit is given if the student only restates the observations made in question 1. ***

Highest possible score - 5 points

Student ID _____ Scoring Form - Colored Dots 2
Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

1, Observations of dots

- | | | |
|---------------|---|---|
| A. Black dot | 0 | 1 |
| B. Green dot | 0 | 1 |
| C. Yellow dot | 0 | 1 |
| D. Red dot | 0 | 1 |

2. Reason why black dot acted the way it did 0 1

Total Score _____
Total possible score - 5 points

Student ID _____ Scoring Form - Colored Dots 2
Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

1, Observations of dots

- | | | |
|---------------|---|---|
| A. Black dot | 0 | 1 |
| B. Green dot | 0 | 1 |
| C. Yellow dot | 0 | 1 |
| D. Red dot | 0 | 1 |

2. Reason why black dot acted the way it did 0 1

Total Score _____
Total possible score - 5 points

#1

Student ID 4C-CN-8

Scoring Form - Colored Dots 2

Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

1. Observations of dots

A. Black dot 0 1

B. Green dot 0 1

C. Yellow dot 0 1

D. Red dot 0 1

2. Reason why black dot acted the way it did 0 1

Total Score 1 pt
Total possible score - 5 points

#2

Student ID 4C-SM-16

Scoring Form - Colored Dots 2

Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

1. Observations of dots

A. Black dot 0 1

B. Green dot 0 1

C. Yellow dot 0 1

D. Red dot 0 1

2. Reason why black dot acted the way it did 0 1

Total Score 4 pt
Total possible score - 5 points

#3 Student ID 4C-DE-7 Scoring Form - Colored Dots 2
Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

1, Observations of dots

- | | | |
|---------------|---|----------|
| A. Black dot | 0 | <u>1</u> |
| B. Green dot | 0 | <u>1</u> |
| C. Yellow dot | 0 | <u>1</u> |
| D. Red dot | 0 | <u>1</u> |

2. Reason why black dot acted the way it did 0 1

Total Score 5 pts
Total possible score - 5 points

Student ID _____ Scoring Form - Colored Dots 2
Male / Female (circle one)

Circle the student's score for each question. Add the points for each question and write the total score at the bottom of the scoring form.

1, Observations of dots

- | | | |
|---------------|---|---|
| A. Black dot | 0 | 1 |
| B. Green dot | 0 | 1 |
| C. Yellow dot | 0 | 1 |
| D. Red dot | 0 | 1 |

2. Reason why black dot acted the way it did 0 1

Total Score _____
Total possible score - 5 points

#1

5. Describe what you observed about each dot.

A. Black dot

It came out

B. Green dot

It mix with ~~red~~ yellow

C. Yellow dot

it mix with red

D. Red Dot

sayed the same

6. Explain why the black dot acted the way it did.

it is the Darc color and it was the only Darc color.

4C-SM-16

#2

5. Describe what you observed about each dot.

A. Black dot

got smuged, a little bit out it turned a dark blue and a little bit of purple

B. Green dot

got smuged, out sid of the dot it turned Blue.

C. Yellow dot

got smuged

D. Red Dot

got smuged turned orange.

6. Explain why the black dot acted the way it did.

Because it went way down into the water

5. Describe what you observed about each dot.

A. Black dot

it turned a light and dark brown purple and blue

B. Green dot

it turned blue

C. Yellow dot

it stayed yellowish orange

D. Red Dot

it turned a peach

6. Explain why the black dot acted the way it did.

because the color black is made up of different colors