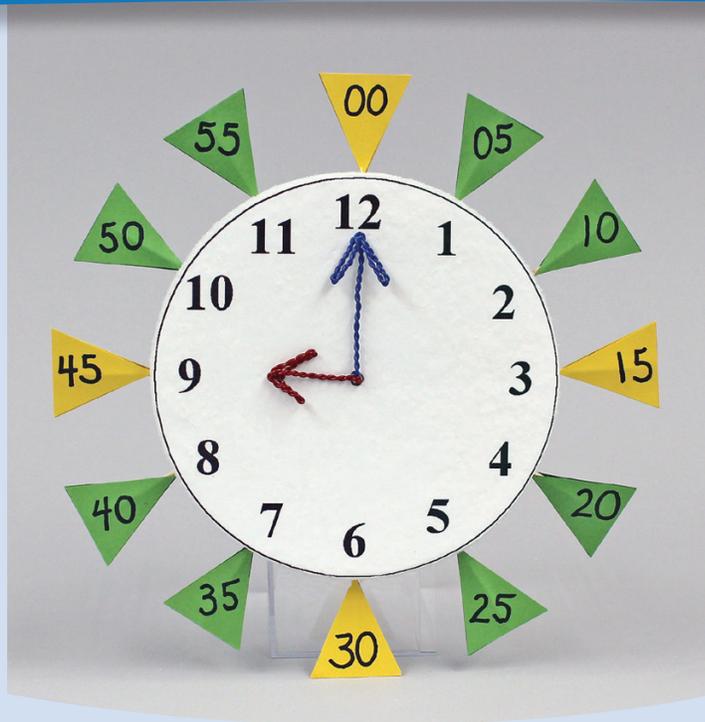


It's About Time

MATERIALS

FOR STUDENT: (one per student unless otherwise noted)

- FloraCraft® Make It: Fun® Foam Disc, 15/16" x 5 7/8" diameter
- Cardstock diamond flags: Four yellow and eight green
- Clock face on copy paper
- Wire, 22 gauge, 15" length of each: Red and blue
- Toothpicks, twelve
- Washable black fine tip marker
- Scissors
- Glue stick
- Small plastic cup (to hold parts)
- Paper plate
- Plastic zip-sealed bag (to hold clock after making) (optional)



FOR TEACHER:

- FloraCraft® Design It:® Wire Cutter
- Cardstock paper, green and yellow, 8 1/2" x 11" (calculate number of sheets based on flag pattern)
- Copy paper, white, 8 1/2" x 11", one per student
- Scissors
- Ruler
- Glue gun (for teacher only)

TEACHER PREPARATION

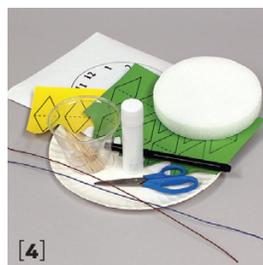
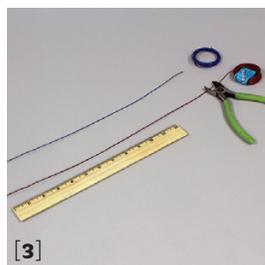
Note: Read through all the instructions first and check out the TIPS! Have a glue gun plugged in and ready to use (ideally set on low temperature) but out of student reach. This can give you immediate adhesion when you're in a hurry to help students. Be sure that the glue has cooled before returning the projects to students. It is also recommended that you make one clock first, before preparing the materials for any others, since knowing how the parts fit, might affect how you prepare the rest of them.

[1] Unwrap one foam disc for each student.

[2] Print the patterns and make copies for each student: Eight green cardstock diamond-flags, four yellow cardstock diamond-flags and one white copy paper clock. Use scissors to cut apart the flags to give the students the correct number.

[3] Use a ruler and wire cutter to measure and cut a 15" length wire in both red and blue for each student.

[4] For each student, place on a paper plate: Foam disc, clock face, green and yellow flags, wire, glue stick, scissors, black marker, and cup of toothpicks.



MATH

GRADE LEVEL
SECOND – THIRD

COMPLETION TIME

• 60 minutes



OBJECTIVES

Students learn to:

- Understand the difference between analog and digital time
- Read an analog clock – to the level of detail you determine
- See the relationship between the hour and minute hands on the analog clock
- Create a learning tool that can be used throughout the year

STANDARDS

- Measurement and data - Work with time and money
- Tell and write time in hours and half hours using analog and digital clocks
- Use language such as "about 5 o'clock" and "a little past 6 o'clock"
- Identify when the hour hand is directly pointing at or slightly ahead/behind a number

LESSON INTRODUCTION

- Discuss the difference between analog time and digital time. Explain how analog time is read on a clock by showing your clock model (with the outside flag numbers turned to face the back).
- Show the students how to rotate the hands of the clock, mentioning the frequent use of quarters of an hour (yellow flags). Then explain how to count by 5's, as you turn the flags, one at a time, going all around the clock. Practice together as a class, so that students see how they can practice with their own clocks after they are made.



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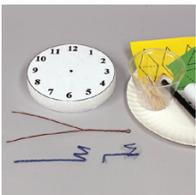
INSTRUCTIONS

[1] Have the students cut out their clock face. Demonstrate and have them apply plenty of glue stick to the surface of their foam disc, going all the way out to the edges, but not onto the sides. Have them center and attach their clock face, smoothing to eliminate wrinkles.



[2] Demonstrate and have the students fold their red wire in half, pinching the fold to flatten it as much as possible. Then demonstrate and have them hold onto the fold and tightly twist together the two ends, going all the way out to the very end. Repeat with the blue wire.

To shape the wires into clock hands, at one end, fold the blue twisted wire at about 1". Then fold it back the same length. Repeat to make four zig-zags. Bend the two outside ones back onto itself to create an arrow tip. Repeat with the red twisted wire.



[3] Have students cut out their diamonds-flags. Ask the students to fold them along the dotted lines so that the black marks are on the inside and the edges align well. Demonstrate how to apply glue stick to an open diamond flag. Then wipe the end of one toothpick across the glue stick to get extra glue on the toothpick. Set the gluey toothpick point so that it touches the middle of the fold and extends out beyond the flag at the point. Fold down the top of the diamond to sandwich the toothpick inside, creating a triangular flag.

Have the students glue one flag and check it before having them proceed

to the remaining eleven flags. Let the students know that there will be one toothpick left over. Ask them to set their flags on their plates to dry.



[4] Have the students use their last toothpick to make the center hole, by pressing the toothpick straight down into the dot in the center of the clock face. Push it all the way through the paper and the disc and come out on the back, pulling it out.

Explain the difference between the hour hand (shorter) and the minute hand (longer). Demonstrate how to set the blue arrow on the clock face with the point of the arrow just touching the bottom of the 12. Pinch where the arrow crosses the center dot, lift up the arrow and bend where your fingers have pinched. Then insert the folded end into the center hole. Since that wire will go all the way through the disc, bend that end back against the disc. Have the students repeat what you did on their clocks.

Demonstrate the same process with the red arrow pointing to the 8, but about 1/2" away from it. (Note: It's good if the hands are tight in the foam because it will hold the hands in the positions they are placed.)



[5] Explain to the students that they will be inserting their flags before numbering them and that it's important that the toothpicks go straight into the edge of the foam. To show that, demonstrate how to insert one yellow flag in the bottom, in line with the 6, aimed toward



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the center. Have the students repeat. On the blank side of the yellow flag, have them print their initials to identify their clocks.

Instruct the students to rotate their clock face so that the 12 is closest to them, and repeat, aiming toward the center. Repeat with the 3 and the 9. Check those to be sure they are correct before having the students insert their green flags in line with the other clock face numbers and aimed toward the center.



[6] Have the students follow along with you to mark numbers on the four yellow flags, starting at the top and bottom: 00 and 30. For the yellow side flags, explain that the students should write the numbers straight on and not turn their clock so that they are writing sideways. They want to be able to read each flag with the clock straight.

Then have them either copy your remaining flags if you have one drawn on the board, or follow along with you, one at a time, going clockwise.

Optional: Have the students store their clocks in the plastic bags.



REFERENCES

- Bats Around The Clock* by Kathi Appelt
Me Counting Time by Joan Sweeney
A Second Is A Hiccup by Hazel Hutchins
About Time: A First Look At Time & Clocks by Bruce Koscielniak



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MODIFICATIONS

To simplify project:

- Eliminate making the flags, or do it at another time after studying and having used the clock.
- Cut cardstock hands and push a paper fastener through them and into the center of the clock face, going into the foam.

To expand project:

- Also make a replica of a digital clock with cardstock numbers on rings so that they flip down to change and read.
- Mark the seconds with pencil and then marker, going all around the clock. Then add a green wire with no arrow.

For multiple ages:

- Younger and older students can work side-by-side, with younger students not making the flags.
- Older students can do research on the Internet to learn more about how time was calculated in Greek and Roman times, as well as how time is regulated today.

ADDITIONAL IDEAS

- Hang the clocks around the room in various areas to indicate the time that those activities and centers are in use. (Example: Put two clocks on or near the door to the room to show when students arrive and leave for the day.)
- Make a jumbo clock using a large foam disc, enlarged and pieced together paper face and heavier wire hands.
- Have the students work together, quizzing each other on telling time. Show them how to turn the flags so that they can test their knowledge of more detailed time telling.
- If students take home their clock to show their parents, they can practice telling time.

TIPS

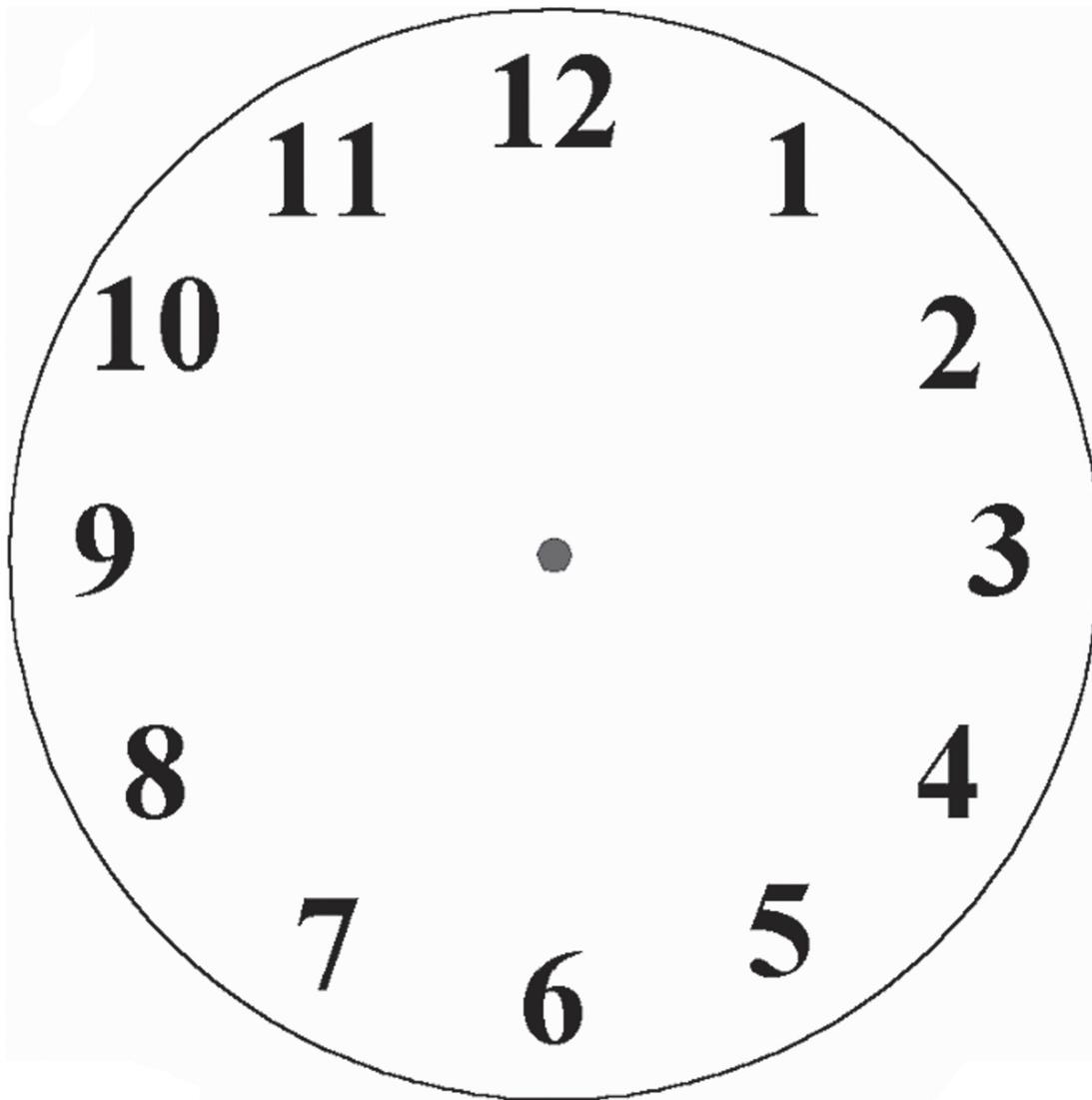
- The reason for bending the arrow instead of cutting a small piece and just gluing it on is that glue doesn't hold wire well. As for figuring out how to bend it, just work with it, zig-zagging and then folding them back onto themselves so that each prong of the arrow is two (twisted wire) layers thick. Suddenly, it will work!
- When showing the students how to fold the arrows on the clock hands, draw a large diagram on the board, based on the step photo.
- It's important that the flags be inserted correctly, by aiming toward the center, so that they don't have to be removed. That way they can be turned to use, but never have to come out, so they won't fall out.
- Have extras of everything, including some extra pre-made flags.
- So that students can see how to label each flag, draw a large circle on the board and duplicate the triangular flags. (In your mind, aim the points toward the center and you'll get them straight, too!)
- To make the clock stand upright, insert one end of a craft stick into the back of the foam disc so that the other end touches the table, like an easel.

PATTERN

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