STEM ACTIVITY BOOK

Ada Byron Lovelace and the Thinking Machine
By Laurie Wallmark

Grace Hopper
Queen of Computer Code
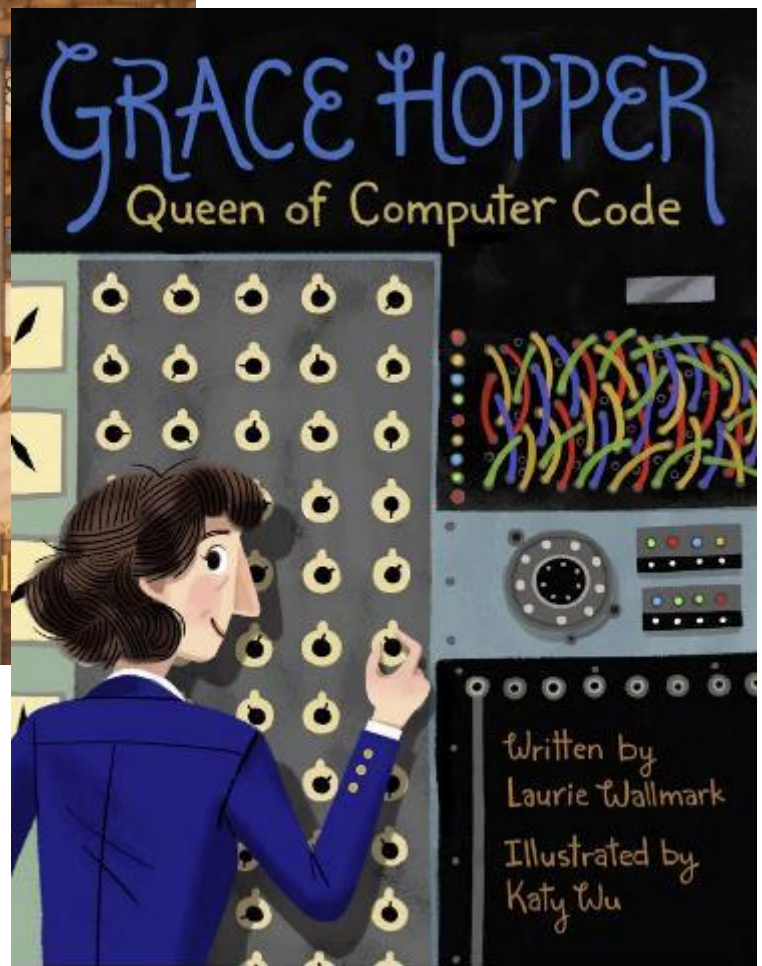Written by Laurie Wallmark
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MÖBIUS STRIP MAGIC
(topology)

MATERIALS:
> Paper strip (approximately 2 inches by 18 inches)
> Scissors
> Glue or tape

CUT A NORMAL LOOP IN HALF. WHAT HAPPENS?
> Draw a line, the long way, down the center of the paper strip.
> Glue the ends of the paper **without twisting** the paper.
> Cut along the line.
> Were you surprised?

CUT A MÖBIUS STRIP IN HALF. WHAT HAPPENS?
> Draw a line, the long way, down the center of the paper strip.
> Make a **single twist** in the paper and glue the ends of the paper.
> Cut along the line.
> Were you surprised?

CUT A MÖBIUS STRIP IN THIRDS. WHAT HAPPENS?
> Draw two parallel lines, the long way, along the paper strip.
> Make a **single twist** in the paper and glue the ends of the paper.
> Cut along the line.
> Were you surprised?

DESIGN AND DRAW YOUR OWN INVENTION

What do you call your invention? _____

What does it do? _____

_____

How does it work?_____

_____

_____

Your name? _____ **Age?** _____

GEOMETRIC SHAPES ARE ALL AROUND US
CAN YOU FIND THESE?

☐ Square

☐ Star

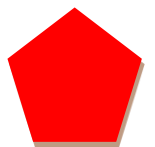☐ Circle

☐ Diamond

☐ Triangle

☐ Crescent

☐ Rectangle

☐ Pentagon (5)

☐ Oval

☐ Hexagon (6)

GUESS YOUR FRIEND'S BIRTHDAY – page 1
(binary arithmetic)

INSTRUCTIONS

Step 1: Ask your friend to look at the five cards shown on the other side: A, B, C, D, and E.

Step 2: Have your friend tell you all the cards the contain the day of the month he or she was born.

Step 3: For each card chosen, add together the number in the upper left-hand corner.

Step 4: That's the day of the month your friend was born on.

GUESS YOUR FRIEND'S BIRTHDAY – page 2
(binary arithmetic)

A			
16	17	18	19
20	21	22	23
24	25	26	27
28	29	30	31

B			
8	9	10	11
12	13	14	15
24	25	26	27
28	29	30	31

C			
4	5	6	7
12	13	14	15
20	21	22	23
28	29	30	31

D			
2	3	6	7
10	11	14	15
18	19	22	23
26	27	30	31

E			
1	3	5	7
9	11	13	15
17	19	21	23
25	27	29	31