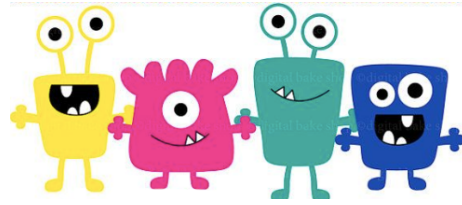


Mathletes Problem of the Week #9

Blip Bleep Bloop



Four aliens, conveniently named A, B, C and D, are standing in line (A is first, B is second, C is third, D is last). Whenever someone says “Blip”, the aliens who are first and second in the line switch places. Whenever someone says “Bleep”, the aliens who are second and third in the line switch places. Whenever someone says “Bloop”, the third and last in the line switch places.

- List at least one set of instructions that will rearrange the aliens to be in the opposite order (D, C, B, A).
- What is the fewest number of commands you need to use to rearrange the aliens to be in the opposite order? How many different ways can it be done with this number of commands?
- What if the commands worked like this: “Glip” makes the first and third aliens switch places; “Gleep” makes the second and fourth aliens switch places; and “Gloop” makes the first and last alien switch places. How quickly can you place them in reverse order now?

(Source: University of Washington Math Circle)

Solutions & Explanations: (Try one or try them all. Record your solutions and show your thinking here and on the back!)

Name _____

Class _____

(First and last name, please!)

Solutions due: January 24th