Hello everyone, welcome back this week.

Does anyone remember what we did last week?

Discuss Binary encoding, run encoding, image to encoding and encoding to image

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Ok, today we will be playing a new game called the "Algorithm Relay Race". We will be playing the first 2 levels of this game today.

Before we begin the game , does anyone know what an algorithm is?

- An algorithm is a series of very clear and precise directions telling us how to complete a task step by step.

*.With algorithms, it is very important to be as clear and specific as possible so that the person completing the task does it correctly.

Let's see if we can write an algorithm about how to make a peanut butter and jelly sandwich:

(Get students to volunteer simple steps. Deliberately be not real specific. The following is the desired initial algorithm. Write the suggestions from the students as similarly to the following as possible)

1) Take out 2 slices of bread
2) Put Peanut butter on one slice
3) Put Jelly on the other slice
4) Put them together and eat

Now let's see if we can make the sandwich using the algorithm. (using 2 jars, and bread)

Do not open the jars, and do not include the knife yet. The result should be funny.

How can this be written better? (ask students to offer corrections on board)

1) Open the bread, and take out 2 slices of bread, and separate them.
2) Open the Peanut butter
3) Use a butter knife to spread some peanut butter on one slice of bread
4) Open the Jelly
5) Use a butter knife to spread some jelly on the other slice of bread
6) Put the two slices of bread together with the jelly facing the peanut butter.
7) Pick up the sandwich and Eat

So, do you see how this algorithm is much clearer and precise than what we had before? When you are writing your algorithms in the game, be sure to write them clearly, and with enough detail to be accurately followed, just as we did this one.

Story Introduction
This game has a very interesting story. Have any of you ever had a pet cat? Well I do and his name is Midnight. Aren't they a great pet? Well this is a true story about Collins the cat from New Zealand. **Port Taranaki, New Zealand** on the West coast on North island, is the center of import/export trade of New Zealand.

A black and white cat belonging to James Gordon MacPherson, a burly dock worker, has disappeared. MacPherson rescued Colins as a kitten, after someone had dumped her in a garbage pail on the docks.

Now, the 9-year-old cat is a popular and much-loved mascot among the dock workers and everyone is fretting about her fate. Her food bowl has been untouched for several days.

Messages are sent out all over New Zealand: be on the lookout for Colins!

CLUE BAG #1: LURE-A-CAT KIT
Colins is a picky eater, despite being a "docks" cat, and you must lay out lures for her precisely. Meow Mix in her favorite bowl, a soft cuddly toy, a ball toy, a colorful circular border.

Ok, now let's start playing the game!

You will be split into teams of four students, and each team will have two pairs working together on two different parts of the game, trying to find Collins the cat. One pair from each team will get Clue Bag #1, and the other pair from each group will get Clue Bag #2. Each bag contains directions telling you what to do. (If there is an odd number, ask if there is one volunteer person who would like to write their algorithm by themselves. They will still be in a team, but it will be only 3 persons, or 5 persons if 1 extra)

- All pairs will write their algorithm at the same time .You will have 20 minutes to write your algorithms. At the end of the 20 minutes, the pictures go to the facilitator.
- After the 20 minutes are up, the pairs that wrote the algorithm for Clue Bag #1 will give the bag to the other pair from their team. Remember when you write your algorithm, that the other pair in your team will not be able to see the picture, when they try to do the steps of your algorithm.
- Now, the second pair of each team must follow and perform the algorithms written by the first pair, with things that are in the bag to lure Colins to the food dish. Both teams want the same result, to find Colins the cat!
- If there are any issues or confusion with the algorithm, the pair that wrote it must fix it before continuing, so take your pencils with you.
- Once Clue Bag #1 is performed and finished, your team will now move on to the next bag.

The cat lures from Clue Bag #1 were done very well, but they did not catch Colins the cat. So because Colins has not been found yet, the team needs to continue looking. But there has been a sighting of a cat on board a trawler that was bound for Indonesia. So now the second pair will try to execute the map to find the trawler. There are many islands in that area and it is necessary to steer the boat carefully to stay in the deep sea channel.

- Now, the pairs that wrote the algorithm for Clue Bag #2 will give the bag to the other pair from their team.
- Now the first pair must follow and perform the algorithm that was written by the second pair, and is now in the bag.
- If there are any issues with the algorithm, the pair that wrote it must fix it, before continuing.
- Once Clue Bag #2 is performed and finished, you are done.

Winners: The team to complete both Clue bag1 and Clue bag 2 first wins this level of the game!

Clue Bag #1: Write directions to lay out the four objects in precise positions to lure Colins to come to his food bowl, on the floor exactly like the picture.

Clue Bag #2: Write directions to locate the bag, and then to draw a route to find the trawler ship that is thought ot have Colins on board, on a gridded map.

Stay tuned – Next week we will continue the search for Colins, in hopes of reuniting the owner James MacPherson, with his beloved cat Colins.

DETAILED RULES FOR REFERENCE

1. Players all start in the center of the room.
2. The facilitator gives Clue Bags #1 to Pair A from team 1 and Pair A from team 2 (etc for team 3 and team 4). Inside these bags are four objects and a picture that shows how and where to position the objects on the floor. The Pair A duos simultaneously write precise directions for displaying the objects: their relative position to each other, distances apart, and each object's pose or orientation, and place where the objects were photographed. Mention to them that their Pair B teammates won't be able to see the picture, so the directions need to be clear and complete.
3. Meanwhile, at the same time, the facilitator takes the PairB to a place in another room, or outside, gives Clue Bags #2 to Pair B from team 1 and Pair B from team 2(etc for team 3 & 4). Inside these bags are two maps. Pair B must write directions to where the bag is now located. Inside the bag is a routeless grid with obstacles, and the other map has a marked route to a ship that the Pair B players must carefully describe, as the second half of the algorithm.. Mention to them that their Pair A counterparts won't be able to see the real route or the location of the ship; again, their directions should be clear and complete about how to locate the ship on the map. The blank grid stays in the bag.

4. When everyone is finished writing, (approx. 20 min) Pair A duos give the picture to the facilitator and their written algorithm to their Pair B teammates. Pair B duos give the real map with the route and their written algorithms, to the facilitator.
5. First, with Pair A looking on, Pair B duos follow the written algorithm of their Pair A teammates to display the objects in Clue Bag 1 precisely. If they succeed on the first try, that team is ready to continue to the map algorithm. If the pair B is confused, then pair A writers have to redo their instructions to make them clearer, and the facilitator makes sure the algorithm is improved.
6. Next, with Pair B looking on, Pair A duos are given the algorithm to find the bag with the map. Pair A follow the written algorithm of their Pair B teammates to find the Bag with the map, and then to follow the map, by marking the blank map with the correct route to the ship. If the pair A is confused, then pair B writers have to redo their instructions to make them clearer, and the facilitator makes sure the algorithm is improved.

WINNERs: The first team whose players are done with both Clue Bag 1 and Clue Bag 2 win this level of the game!

Potential extra task for a third pair.

If there is a pair without the rest of the team of 4, then put that pair with another team of four and they will do this extra task. Picture needs a pink collar. And the cat needs some black fur on its back

Directions to the student pair:

Describe the following poster, including how to draw the cat.

You can not just repeat the poster's words exactly.

LOST CAT!

Meow

She is black and white with big eyes.

She has a pink collar with her name Collin.

She was last seen on Farley at the docs.

If you find her, please call 908-737-1234