Theme Cycle: Our Universe, Our Place

Repair a “Satellite”

Sequence

After the interdiction of the Coversheet

Explanation

This activity ties meaning and purpose (Connection to the 7 Gateways - Meaning and Purpose) for the theme Our Universe, Our Place because each student needs to serve a purpose to complete the “satellite” building Mission.

List of Materials

- Legos

Spatial Needs

- Two rooms where the three different roles for students cannot see each other.

Detailed instructions:

Before activities preparation work:

1) Figure out the numbers of groups for the class by dividing the class into groups that are sized from 4 to 6 students to figure out the number of “satellites” to build, y
2) Prebuild 2y number of identical base “satellite” out of one color of blocks.
3) From the group of base satellites built in step 2, complete half the “satellites” using bricks of different colors. Place the parts to construct the remaining satellites into bags.
4) After the completion of Step 3, there will be y number of complete “satellites” and y number of half-built “satellites” with a bag of parts. Note all parts need to be identical between groups.
5) On the day of: select an area for ground control, the spaceship, and Joint Space Research Facility will have to walk between these two areas without seeing either build. Note these areas need to be out of sight from each other and need to have a space where the Joint Space Research Facility people can not see into the room.

With Students:

1) Divide the students into random groups of 4 to 6 students.
2) Give them the story narrative.
    a. “An important communication “satellite” has stop working. The world can not connect. In response a space crew and supplies are hurriedly blasted into space. In the rush, they forgot the directions.”

b. “Your teams’ job is to build a new addition to the existing “satellite” to make it functional again. But there is a catch, since the communications “satellite” is down, Ground control cannot directly communicate with the space ship. Houston Ground Control has a model of what the finished “satellite” should look like. They can communicate with Joint Space Research Facility Australia who can only verbally communicate with the astronauts in space but cannot see the model “satellite” in Houston or the “satellite” in space. The astronauts in space can only verbally communicate with Joint Space Research Facility Australia.
c. “Your team needs to divide into roles: Astronauts, Houston Ground Control, Joint Space Research Facility Australia.”
d. Reminder -
    i. Astronauts – Build the addition to the “satellite” in space based on what the Joint Space Research Center Facility in Australia verbally tells them. The Astronauts never see the model “satellite” in Houston.
    ii. Joint Space Research Facility Australia – Transmits verbal instructions to the Astronauts and communicates with Houston Ground Control. Joint Space Research Facility never sees the model “satellite” or the “satellite” in space.
    iii. Houston Ground Control – Sees the model “satellite” and must provide instructions to the Joint Space Research Facility to give to the Astronauts.

NOTE: The instructions are intentional in the wording of “verbal communication” and just “communication”. There is no rule against Houston drawing a picture or writing directions and handing it to Joint Space, but the picture cannot be sent to space. I usually do not directly tell the groups this, to see if they organically figure it out.

3) General rules:
    a. Students are allowed about 20 minutes to complete the build.
    b. Joint Research Facility shall not see either build.
    c. No running.
4) Hand out role sheets and send students to their respective areas.
5) Announce loudly that the work can begin.
6) After 20 minutes of students working, stop the exercise and regroup.
7) Student groups evaluate the space satellite compared to the Houston Model.
8) Have the students discuss what went well and what could be done to improve their results.
9) Do AOP Questions

Variations:

1) Use gum drops and tooth picks. Make sure colors match.

2) Eliminate the loop hole of written communication between Houston and Australia.

AOP/Discussion questions

a. How did the limits of the roles make you feel?
b. Is there a better way to communicate instructions?
c. Did your role have meaning to the group? Was there a way your group figured out how to structure roles to make things work better?
d. How did the roles limit what they could do? Do we see anywhere where applying a “role” can limit someone’s purpose?
e. If you could change one rule, what would it be? What impact would it have on the game?

Repair of “Satellite” Roles

- Astronauts – Build the addition to the “satellite” in space based on what the Joint Space Research Center Facility Australia verbally tells them. The Astronauts never see the model “satellite” in Houston.

- Joint Space Research Facility Australia – Transmits verbal instructions to the Astronauts and communicates with Houston Ground Control. Joint Space Research Facility Australia never sees the model “satellite” or the “satellite” in space.

- Houston Ground Control – Sees the model “satellite” and must provide instructions to the Joint Space Research Facility Australia to give to the Astronauts.