LANDFORMS Kit – Investigation 1

Dear Students,

Each year, the safety committee meets to find the safest places on our school grounds to line up during a fire drill. I am making a presentation to that committee next week. I need you to help me with a problem. I need an accurate model of our school grounds to show the committee, but I don't have time to create one.

In order to create an accurate model, it is important that you carefully observe the features of the school grounds. It is also important that you record accurate details and take clear notes.

Thank you in advance and I look forward to seeing the models you will create.

Sincerely,

School Principal

TASK I

Problem: Create a model in the stream table that represents your school grounds.

Available Materials: You may use half of a stream table, earth materials, craft sticks, and blue gram pieces (and whatever additional materials are available in the room or outside).

Criteria for a successful solution to the problem: Your team will create a model that shows the school buildings and school grounds and any playground structures.

Constraints: The model must be built in the stream table. You can only use the materials available in the classroom or that you have collected from the school grounds.

Background Knowledge: Prior to the design challenge students will need lessons and activities on scale, map key, directionality (compass rose), and birds eye view.

 This work is funded by the Washington State Office of Superintendent of Public Instruction Mathematics & Science Partnership under Title II, Part B Program Code: 62CFDA 84.366.

Dear Students,

Your models were very well done and showed me a lot of detail. Unfortunately, the stream table models are too difficult for me to carry to the meeting. I need you to transfer your model data to something that is flat and easy to carry.

Sincerely,

School Principal

TASK II:
Problem: Transfer your data to some material that is flat and can be easily transported.

Available Materials: Transparent graph sheets, wipe off markers, scotch tape, and models already created in stream tables.

Criteria for a successful solution to the problem: Your team will draw a map of our school grounds. The school building, playground, and parking lots need to be included on your map. Draw your map to scale with a North arrow. Your map must be clear and easy to read.

Constraints: You need to show the school building, all portables, fences, bus lanes and parent pick up lanes, parking lots, sidewalks, and grassy or bark areas and the paved areas of the schoolyard.

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Dear Students,

Your transparency maps were very well done, but the safety committee didn't understand what some of the symbols and areas were. They need an accurate scale map of the school grounds in order to finalize the school safety plan.

I am anxious to see the maps that you produce.

Sincerely,

School Principal

TASK III:

Task: Your team will draw an accurate scale map of the school grounds.

Problem: Draw an accurate scale map of our school grounds.

Available Materials: Transparencies, stream tables, wipe off markers, paper, pencils, and colored pencils.

Criteria for a successful solution to the problem: Your team will draw a scale map of the school grounds with a North arrow and map key included. Your map must be clear and easy to read.

Constraints: You need to show the school building, all portables, fences, bus lanes and parent pick up lanes, parking lots, sidewalks, and grassy or bark areas and the paved areas of the schoolyard.

- Your map must be drawn to scale.
- Use a compass rose to show the cardinal directions
- You must have a map key to explain your scale and any other symbols or colors that you use in your map.
- Your map needs to be drawn on map grid provided (student sheet #5)

Background Knowledge: Prior to the design challenge review with students scale, map key, directionality (compass rose), and birds eye view.

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