**Performance Task: Urban Planning on Mars**

**Situation:** You are a world renowned urban planner and are entering an international competition to design one of the first cities on Mars! The city must include different buildings and businesses that won rights to build on Mars (listed in the Building Code in the Performance/Product section) and you want your plan to be convincing enough to win by explaining your design choices using your expert Geometric knowledge. You must design it using your compass and straightedge so that the International Urban Planning Committee for Mars knows that your plans are accurate.

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**Standards:**

They will be looking for you to have 3 parts:

1. ALL of the buildings/businesses placed and labeled on the map according to the criteria
2. Evidence that you have used your compass correctly to place your buildings (leave light pencil construction marks)
3. Justifications with geometric vocabulary (one complete sentence per criteria that you met)

**Written Component**  
Your map must be accompanied by a justification for where you placed each building so that the committee can see your thought process and know how intentionally you built your map.

i.e. “I chose to place Starbucks and Dunkin Donuts at corresponding angles so they would have the same size angle measure to build on”

Each justification must include a geometric vocabulary word from the list we have been building all throughout the unit. These words include:

* Congruent
* Parallel lines
* Perpendicular lines
* Bisect
* Midpoint
* Corresponding angles
* Vertical angles
* Alternate interior angles
* Same side interior angles
* Alternate exterior angles
* Same side exterior angles
* Linear pair angles
* Adjacent angles
* Supplementary angles
* Complementary angles

**Performance/Product:**

You are to complete a city map using your compass and straightedge with a written description. You must follow certain criteria for how to place your buildings and businesses with your compass and straightedge. The Building Code is:

1. Donald Trump and Vladimir Putin won the rights to street names with the condition that they can never intersect
2. The police department must be equidistant from the school and the jail
3. The school must be bigger than the jail
4. The library must be next to the school
5. The school and jail can’t be near each other
6. Starbucks and Dunkin Donuts both want to be on the same intersection on the same street, but you have to give them both the same size area to build their business so that it doesn’t look like you are favoring one over the other.
7. Footlocker and Payless also both want to be on the same intersection on the same street, but Footlocker has more shoes so needs a bigger size store.
8. The hospital and the fire department want to be right across the street from each other but the same exact size
9. The space station and airport should be equidistant from the gas station
10. The mall is twice as far from the park as the lake is
11. The park must be a right triangle with a statue occupying the biggest corner and the lake must be completely circular
12. Bank and post office should be the same size
13. The city hall and courthouse must be near each other and the same size
14. Target and Walmart want to be on different blocks but the same size
15. The bodega and grocery store must be on the same block, but grocery store is bigger

\*\*Your city’s name and the name of the buildings and streets are at your discretion but must be appropriate for the professional competition!

**Performance Task – Urban Planning Rubric**

City Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  | **4**  **Winner** | **3**  **Finalist** | **2**  **Semi-finalist** | **1**  **Rejected** | **0**  **Not submitted** |
| **Building Code:** Buildings are placed according to criteria laid out. | City map has met all building criteria efficiently. | City map has met all building criteria. | City map has met most of building criteria. | City map has met some of building criteria. | City map has not met any building criteria. |
| **Constructions:** Constructions are done with appropriate geometric tools to place buildings | City map has been accurately and clearly laid out using compass and straightedge, showing apparent but neat construction marks | City map has been accurately laid out using compass and straightedge, but may show sloppy execution of construction | City map is not entirely accurately laid out using compass and straightedge, and may or may not show sloppy construction marks | City map has only some accurate construction but generally sloppy execution of construction. | Compass and straightedge have not been used to lay out city map. |
| **Justifications:**  Justifications use geometric vocabulary to back up building placement choice. | Justifications include ALL of the appropriate and accurate geometric vocabulary to describe choice. | Justifications include MOST of the appropriate and accurate geometric vocabulary to describe choice. | Justifications include SOME of the appropriate and accurate geometric vocabulary to describe choice. | Justifications include NONE of the appropriate and accurate geometric vocabulary to describe choice. | Justifications do not accompany the city map. |

Total points: \_\_\_\_\_\_\_\_\_ / 12 Score: \_\_\_\_\_\_\_\_\_\_\_\_ / 100

**Comments:**

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