Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*(This is an individual Quest. Points earned on this quest will go to individual XP points)*

* *Turning this assignment in and receiving and 11 or above on the* ***first try*** *will give you an automatic 15 extra XP points.*
* *If you are not happy with your score you are allowed to resubmit your assignment as many times as you want to get the highest possible, score that you want- not to exceed 26 Experience Points)*

**Houses in a Row**

This problem gives you the chance to:

* Find a pattern in a sequence of diagrams
* Use the pattern to make a prediction

Lindsay uses toothpicks to make housed in row

Six toothpicks make one house, eleven toothpicks make two houses and sixteen toothpicks make three houses.

1. Draw a diagram to show four houses in a row. (neatness counts)
2. Lindsay made a table to show the number of toothpicks needed to make different numbers of houses in a row.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of houses | 1 | 2 | 3 | 4 | 5 | 6 |
| Number of toothpicks |  |  |  |  |  |  |

How many toothpicks are needed to make four houses in a row?

Write your answer in Lindsay’s table.

1. How many toothpicks are needed to make six houses in a row? Write your answer in Lindsay’s table.

Explain how out you figured out how many toothpicks were needed for six houses. *(Be sure to answer in complete sentences!)*

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| --- | --- | --- |
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1. Lindsay has 41 toothpicks. How many houses in a row can she make? *(Be sure to answer in complete sentences!)*

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| --- | --- | --- |
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Explain how you figured this out. *(Be sure to answer in complete sentences!)*

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Lindsay says, “I need 55 toothpicks to make 11 houses in a row.” Lindsay is wrong. Explain why she is wrong. *(Be sure to answer in complete sentences!)*

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1. How many toothpicks does Lindsay need to make 11 houses in a row?

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Explain how you figured this out. *(Be sure to answer in complete sentences!)*

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| **Houses in a Row** Rubric  |  |
| The core elements of performance required by this task are:• find a pattern in a sequence of diagrams• use the pattern to make a predictionBased on these, credit for specific aspects of performance should be assigned as follows  | points | section points | Experience points Earned |
| 1. Draws a correct diagram showing 4 houses in a row.
 | 1 | 1 |  |
| 1. Gives correct answer:
 | 1 | 1 |  |
| 3. Gives correct answer: Draws a correct diagram or gives a correct explanation  | 12 | 3 |  |
| 4. Gives correct answer: Gives a correct explanationDraws a correct diagram or gives a correct explanation | 1 22 | 5 |  |
| 5. Gives a correct explanation. Gives correct answer: | 12 | 3 |  |
|  |  |  |  |
| **Total XP points**  |  | **13 X 2 = 26** |  |