School logo

|  |  |  |
| --- | --- | --- |
| **PROJECT** | | |
| **SUBJECT** | **:** | **MATHEMATICS** |
| **GRADE** | **:** | **8** |
| **TASK** | **:** | **Term 3 Project** |
| **MARKS** | **:** | **60** |
| **DURATION** | **:** | **1 - 2 Week** |

**NAME OF LEARNER: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ GRADE 8: \_\_\_**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question number** | **1** | **2** | **3** | **Total** |
| **Total marks** | **20** | **20** | **20** | **60** |
| **Learner marks** |  |  |  |  |
| **Moderated marks** |  |  |  |  |



**MATHEMATICS**

**GRADE 9**

**TERM 3 2021**

**EXEMPLAR PROJECT**

**TRANSFORMATION GEOMETRY**

**TRANSFORMATION GEOMETRY**

**DATE: TERM 3 2021**

**TIME: 3 HOURS**

**TOTAL: 50**

**NAME OF LEARNER: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ GRADE 9: \_\_\_**

**STREET DESIGN PROJECT**

|  |  |
| --- | --- |
| **TIME:** | 3 hours |
| **TARGET AUDIENCE:** | Grade 8 learners |
| **REQUIRED PREVIOUS KNOWLEDGE:** | Identify and describe lines.  Identify and find angles.  Draw, Identify and classify 2d shapes. |
| **REQUIRED MATERIALS:** | Rulers, A3 paper, pencils , colour pens or pencils, protractor. |

Learners will demonstrate their knowledge of parallel lines with a transversal.

**STREET DESIGN PROJECT**

For this project, each learner will make his or her own map for a fictional residential area. This residential area will consist of parallel lines, perpendicular lines, transversals ,diagrams constructed from 2d shapes, trees and plants.

There are three sections to the project:

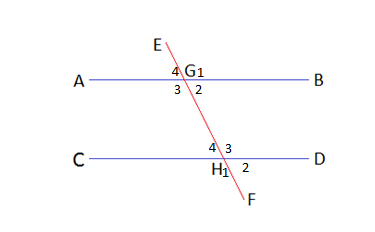
1. Section A is a teacher guided activity on Straight line geometry. This section is marked using a memorandum.
2. Section B is a teacher guided activity on Geometry of 2D shapes. This section is marked using a memorandum.
3. Section C is an individual learner activity and is marked using a rubric.

**Section A**

**This section consists of questions on Straight line geometry.**

**THIS IS A TEACHER GUIDED SECTION**

1. **Three lines are drawn in the diagram below. Study the diagram and then answer the questions that follow.**

****

* 1. **What is the relationship between the lines AB and CD? Provide a reason for your answer.**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(2)**

* 1. **What is the name given to line EF?**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(1)**

* 1. **Name the types of angles formed when a transversal intersects two parallel lines.**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(3)**

* 1. **Use your protractor to measure each of the angles in the given pairs of angles and then indicate the relationship between the two angles in each pair.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Pair number** | **Angle 1** | **Angle 1 measure** | **Angle 2** | **Angle 2 measure** | **What is the relationship between the two angles ?** | **What is the name given to angle pair?** |
| **1** |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |

**(14)**

**[TOTAL 20]**

**Section B**

**This section consists of questions on Geometry of 2D shapes.**

**THIS IS A TEACHER GUIDED SECTION**

**STEP ONE**

For each diagram:

1. plot the given co -ordinates on the grid provided
2. join the points to create a known quadrilateral
3. colour in your diagram as per colour indicated
4. answer the questions on the quadrilateral.

EXAMPLE:

|  |  |
| --- | --- |
| **EXAMPLE** | |
| **NAME OF POINT** | **COORDINATES**  **( x, y )** |
| **A** | **(1,4)** |
| **B** | **(5,4)** |
| **C** | **(5,0)** |
| **D** | **(1,0)** |

Chart, histogram

Description automatically generated

Colour in the quadrilateral black.

Identify quadrilateral ABCD.

|  |
| --- |
| ABCD is a square. |

Use the diagram that you drew to provide reasons for your answer.

|  |
| --- |
| 1. All 4 sides are equal |
| 1. Two pairs of Opposite sides are parallel |
| 1. All 4 interior angles are equal to 900 |

DIAGRAM ONE

The co - ordinates for this quadrilateral must be provided by the educator.

|  |  |
| --- | --- |
| **NAME OF POINT** | **COORDINATES**  **( x, y )** |
| **E** |  |
| **F** |  |
| **G** |  |
| **H** |  |

Chart, line chart

Description automatically generated

Colour the quadrilateral red.

Identify quadrilateral EFGH.

|  |
| --- |
| (1) |

Use the diagram that you drew to provide reasons for your answer.

|  |
| --- |
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|  |
|  |
| (3) |

DIAGRAM TWO

The co - ordinates for this quadrilateral must be provided by the educator.

|  |  |
| --- | --- |
| **NAME OF POINT** | **COORDINATES**  **( x, y )** |
| **I** |  |
| **J** |  |
| **K** |  |
| **L** |  |

Chart, line chart

Description automatically generated

Colour the quadrilateral blue.

Identify quadrilateral IJKL.

|  |
| --- |
| (1) |

Use the diagram that you drew to provide reasons for your answer.

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|  |
| (3) |

DIAGRAM THREE

The co - ordinates for this quadrilateral must be provided by the educator.

|  |  |
| --- | --- |
| **NAME OF POINT** | **COORDINATES**  **( x, y )** |
| **M** |  |
| **N** |  |
| **O** |  |
| **P** |  |

Chart, line chart

Description automatically generated

Colour the quadrilateral green.

Identify quadrilateral MNOP.

|  |
| --- |
| (1) |

Use the diagram that you drew to provide reasons for your answer.

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|  |
|  |
| (3) |

DIAGRAM FOUR

The co - ordinates for this quadrilateral must be provided by the educator.

|  |  |
| --- | --- |
| **NAME OF POINT** | **COORDINATES**  **( x, y )** |
| **Q** |  |
| **R** |  |
| **S** |  |
| **T** |  |

Chart, line chart

Description automatically generated

Colour the quadrilateral yellow.

Identify quadrilateral QRST.

|  |
| --- |
| (1) |

Use the diagram that you drew to provide reasons for your answer.

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|  |
|  |
| (3) |

DIAGRAM FIVE

The co - ordinates for this quadrilateral must be provided by the educator.

|  |  |
| --- | --- |
| **NAME OF POINT** | **COORDINATES**  **( x, y )** |
| **U** |  |
| **V** |  |
| **W** |  |
| **X** |  |

Chart, line chart

Description automatically generated

Colour the quadrilateral black.

Identify quadrilateral UVWX.

|  |
| --- |
| (1) |

Use the diagram that you drew to provide reasons for your answer.

|  |
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|  |
|  |
| (3) |

**[TOTAL 20]**

**Section C**

**INSTRUCTIONS**

1. **Appearance**

* **The project must be done on A3 paper .**
* **It must be drawn neatly and in colour.**
* **Neatly print your name in the top right corner of the project.**
* **You may add detail as long as it does not interfere with the requirements or the appearance of the map.**
* **Make use of the different 2d shapes that you have learnt about to construct the buildings.**
* **Remember to be creative.**
* **Your project must be unique to you.**

1. **Drawing the Streets**

* **At the top left corner of the poster, indicate the name of your residential area and indicate the number of houses in the residential area.**
* **Draw three (3) streets that are parallel to each other. Each street should be named for reference.**
* **Draw Two (2) transversal streets. (i.e., Two streets that intersect all three of the above parallel streets). These should be named as well. Do *not* make the transversals parallel to each other!!!**
* **Draw Traffic lights or stop signs at four (4) different intersections.**

1. **Adding the Buildings**
2. **Your map must include the following buildings.**
3. **Spaza shop**
4. **School**
5. **Post office**
6. **Police station**
7. **Bank**
8. **Library**

**c. Petrol station**

**d. Your own house**

**e. Place of prayer (Church, Temple, Mosque, etc)**

1. **Ensure that your buildings are drawn according to the type of quadrilaterals and 2D shapes that you have learnt about.**
2. **Appropriate building names must be placed on “signs” on or near the building.**
3. **Location of the Buildings**

**The buildings must be placed in the following locations.**

**1. Your house and the school at alternate angles.**

**2. The post office and the bank at co - interior angles.**

**3. The Church and police station at corresponding angles.**

**4. The library and post office at *vertically*  opposite angles.**

**5. The Petrol station and Spaza shop at supplementary angles.**

**6. The Place of prayer and Your house at corresponding angles.**

1. **Including a Park**

**In the lower left corner of your residential map, you will create a park.**

**The park must meet the following criteria:**

* + **The park is a square (side = 10cm)**
  + **Within this square draw a round sandbox with a 4cm diameter.**
  + **Draw a rectangular swimming pool that has a length of 4cm and breadth of 2cm.**
  + **Draw a pond with a radius of 2cm.**
  + **Finally, draw a right scalene triangle for the picnic area.**

1. **Additions**

* **You must add 5 (five) other items to your map.**
* **Some possibilities are, slide and swings for the park, picnic tables in the picnic area of your park, extra roads, people, trees/plants, cars and trucks on the roads, traffic signs, a railroad, a bus station, a river, etc**

**(20)**

**Well done! … you're reached the end!**

**Total : 60**