

MATHS LEARNING DESIGN TEMPLATE

Topic:	COORDINATE GEOMETRY/CARTESIAN PLANE			
Subtopic:	CARTESIAN COORDINATES			
Class:	YEAR 7	Duration:	1 –2 PERIOD	Date:
Content Learning Objectives:	Pupils should be able to: <ul style="list-style-type: none"> Plot and interpret points defined in ordered pairs (x,y) in the cartesian plane using appropriate scales. 			

Tuning in (Introduction) <i>Determine prior knowledge and prepare pupils</i>		
Teaching & Learning Activities	Resources	Summary
1. Share the lesson objective to the students 2. Recall ordered pairs done in other subject such as geography (Topic: Maps) 3. Related and introduce axes of x and y.		
Finding out & Sorting out (Lesson Development) <i>Time to locate, gather information, organise and process ideas.</i>		
Teaching & Learning Activities	Resources	Summary
4. Introduce Cartesian plane with both x and y axes including scales (start with 1cm = 1 unit for both axes) 5. Label on the diagram the following key terms: x-axis, y-axis and the origin. Note: Draw all four quadrants and label the both positive and negative scales. 6. Explain that ordered pair is written in the form (x, y). 7. Explain how to <u>read</u> given points (e.g. A – E) from the Cartesian plane. Start with points A – E in the 1 st quadrant (where ordered pairs are all positive) 8. Further explain how to <u>plot</u> points F – J with given ordered pairs/coordinates.		
Making Connections (Conclusion) <i>Draw conclusion and consolidate understanding</i>		

Teaching & Learning Activities	Resources	Summary
<p>9. All students are given Activity 1 worksheet (Appendix 1)</p> <p>10. Activity 1 is plotting Points of given coordinates/ordered pairs in the first quadrant (both x and y are positive)</p> <p>11. Higher ability students are given extra worksheet (Activity 2) once they finished with Activity 1.</p> <p>12. Activity 2 (Appendix 2) is plotting Points of given coordinates in all four quadrants.</p> <p>13. Group 2 – 4 students per group (buddy system). At the end of allocated time for Activity 1. Get students to check the correct answer together for worksheet Activity 1.</p> <p>14. Get students to work together to check worksheet Activity 2. LA shared worksheet Activity 2 with MA/HA to learn (peer learning) to read and plot in all four quadrants.</p> <p>15. Conclude the lesson by summarizing the ordered pairs in all four quadrants i.e. 1st (x,y), 2nd (-x,y), 3rd (-x,-y) and 4th (x,-y).</p>	Appendix 1–2	
Go Further (Enrichment) <i>Apply knowledge to develop further understanding</i>		
Teaching & Learning Activities	Resources	Summary
16. Give all students Appendix 3 worksheet as assignment/task.	Appendix 3	

Evaluation <i>(with respect to the Content Learning Objectives)</i>		
	What worked well?	What would make it even better next time?
Tuning in		
Sorting & Finding out		
Making Conclusions		
Go Further		

Activity 1 – Coordinate Plotting

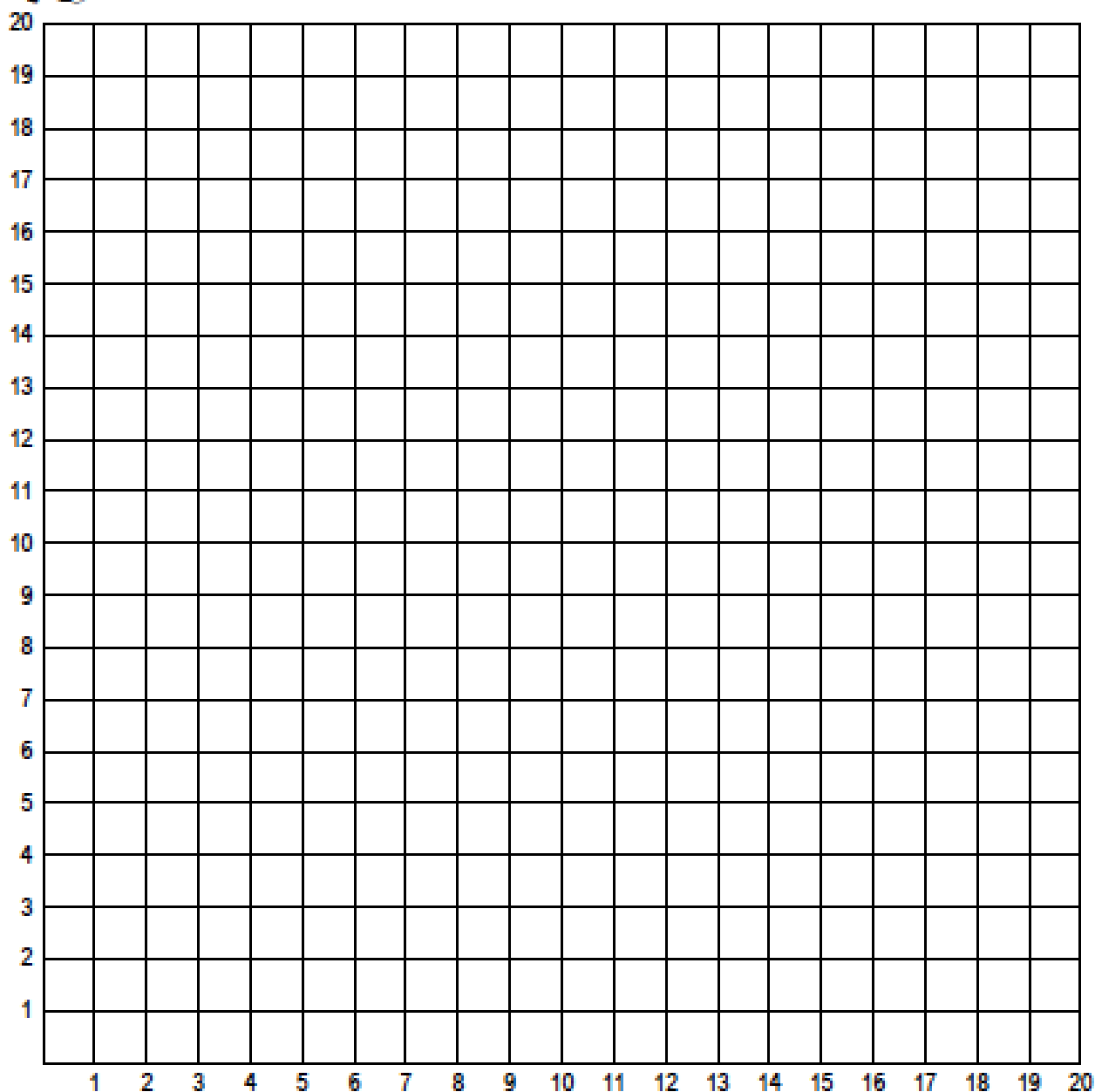


Coordinate Systems

Name: _____ Date: _____



Plot each of the named points on the graph.



Point P at (12, 11) Point O at (4, 4) Point F at (16, 15) Point N at (0, 4)
 Point Z at (6, 1) Point V at (17, 1) Point M at (12, 4) Point E at (6, 20)
 Point Q at (16, 10) Point W at (2, 20) Point A at (2, 15) Point I at (1, 9)
 Point U at (18, 18) Point L at (9, 3) Point C at (5, 10)

Activity 2 – Coordinate Plotting in all four quadrants

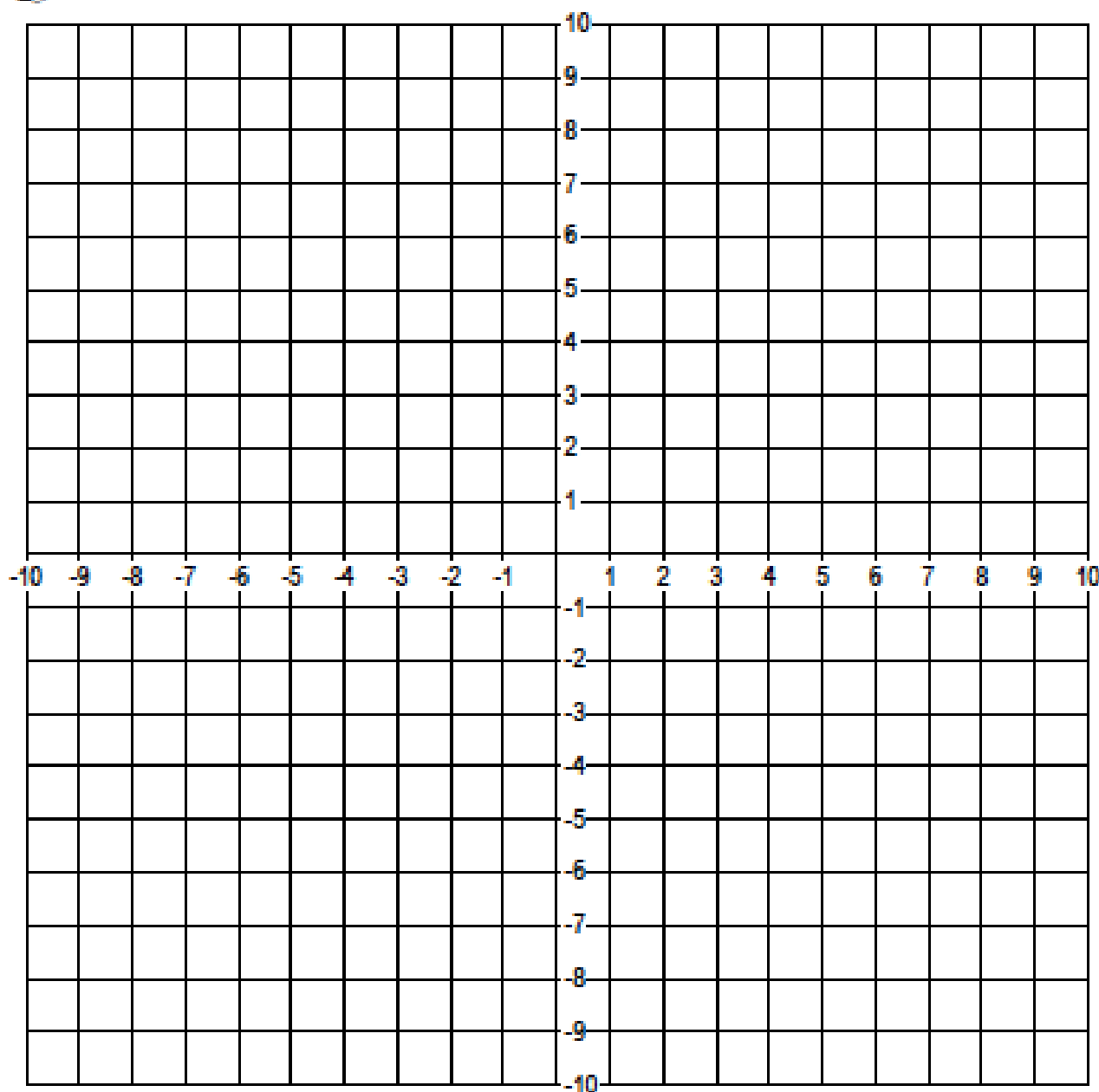


Coordinate Systems

Name: _____ Date: _____



Plot each of the named points on the graph.



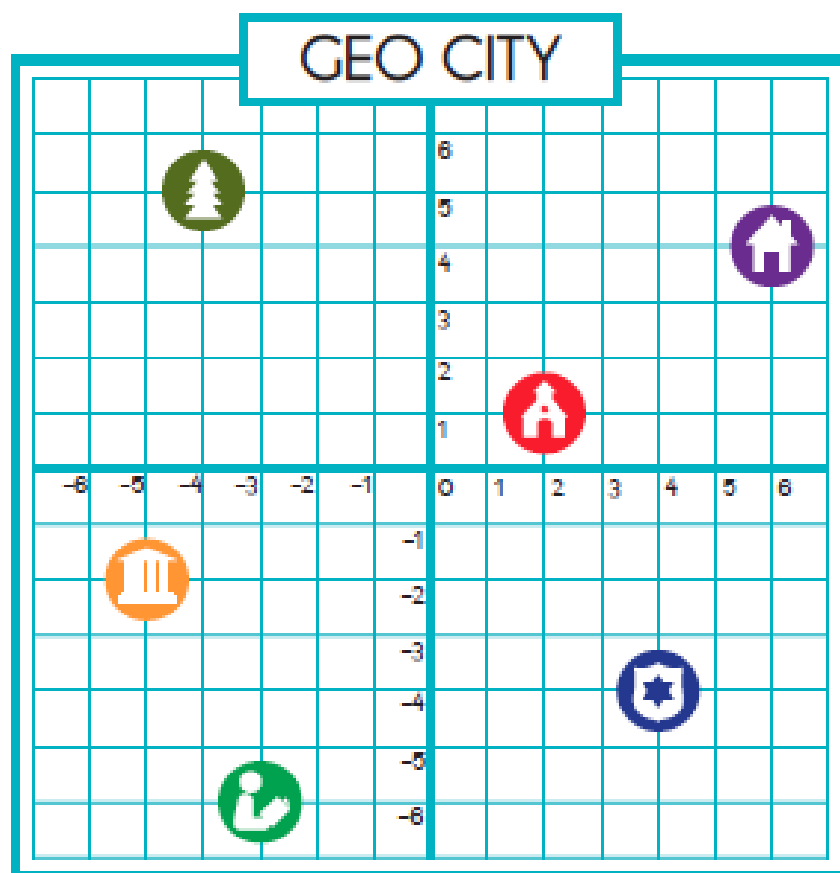
Point V at (-3, 6) Point E at (3, 10) Point K at (-9, 3) Point G at (-9, -8)
 Point J at (3, -10) Point S at (5, 7) Point L at (-2, -10) Point T at (7, 9)
 Point P at (10, 5) Point W at (-4, -7) Point F at (3, 7) Point Y at (3, 3)
 Point X at (9, -4) Point R at (-9, 7) Point A at (4, -4)

Worksheet – Classwork or Homework







Ordered Pairs

Name: _____

A pair of perpendicular lines called axes intersect at 0 for each line. A given point on the plane is located by using an ordered pair of numbers called coordinates. The first number ('x' value) indicates how far to travel from the origin horizontally along the x-axis, and the second number ('y' value) indicates how far to travel vertically along the y-axis.



Key

-  School
-  City Hall
-  Park
-  Library
-  Police Station
-  House

Using the coordinate grid of Geo City, answer the following questions:

- What is the ordered pair for the location of the police station?
- Which location can be found at coordinates (6, 4)?
- Which location can be found at coordinates (-5, -2)?
- What is the ordered pair for the location of the school?
- Which location can be found at coordinates (-4, 5)?
- What is the ordered pair for the location of the library?
