

**LESSON 1. THE CARTESIAN COORDINATE SYSTEM**

Approximate timing: 4 hours

Important: Each student has to do and answer all the exercises, although the process to solve them is done in pairs or groups.

ACTIVITY	INTERACTION	STUDENTS TASKS:	REMARKS
T,1, T.2, T.3	Pairs/plenary	Read aloud the activities, work out the results in pairs, and report to the plenary	This activities are designed to fully understand and assimilate the theory
1	Pairs	Work in pairs: one gives instructions, the other student draws the point. Then they swap their roles	The teacher can choose at random, one student to give instructions to the full class to plot the points.
4	Pairs/Plenary	Game	“Much care is needed”. The teacher can talk and ask questions about the importance of doing the activities and drawing the axes in a neat and ordered way.
5	Individually		The results can be checked in the plenary.
7	Pairs	One member of the group gets the information about junk messages, and in pairs, they do the activity.	.
8	Group	In turns, one of the students of the coordinate-card group asks questions to the members of the graph-card group who must answer the question.	Alternative: the members of the graph-card group remain seated, while the members of the coordinate-card group, go around asking questions in order to find their matching cards. Later they swap the roles.
10	Individually/Pairs	Reading the text: first individually, later aloud and in turns. Questions: in pairs.	

11	Individually/pairs	Reading the text: first individually, later aloud in turns. Activity in pairs.	Learners should look for information in the internet resource provided, in order to answer some of the questions.
12	Individually/pairs /groups of 3/plenary	Head and tails: pairs Drawing: individually Power point: groups of 3	The power-point presentation should include: main points of the lessons (key sentences), examples and their solutions. Creativity is allowed (songs, games...). The time of the presentations must be divided in three parts: each student has to talk at least once, and for about 2 or 3 minutes. The minimum length of the presentation should be 10 minutes. It would be motivating to teach the students to prepare a power-point contest. They can decide the rating, and the rules for the contest.

**LESSON 2. GRAPHS AND FUNCTIONS.**

Approximate timing: 5 hours

ACTIVIY	INTERACTION	STUDENTS TASKS:	REMARKS
T,1, T.2, T.3,T.4,T.5	Pairs/plenary	Read aloud the activities, work out the results in pairs, and report to the plenary	This activities are designed to fully understand and assimilate the theory
11	Pairs/plenary	Writing	Once they have prepared the writing, instead of reading the text, the students can tell the story to the group.
17	Pairs/plenary/gro ups of 3/plenary	Power point presentation; power point contest.	<p>The power-point presentation must include: main points of the lessons (key sentences), word problems or examples and their solutions. Creativity is allowed (songs, games...).</p> <p>The time of the presentations must be divided in three parts: each student has to talk at leastst once, and for about 2 or 3 minutes.</p> <p>The minimum length of the presentation should be 10 minutes. It would be motivating to teach the students to prepare a power-point contest. They can decide the rating, and the rules for the contest.</p>

## INSTRUCTIONS TO SOLVE WORD-PROBLEMS

1. Read the problem on your own.
2. The problem will be read aloud in turns in the class.
3. Read the problem on your own again, and as many times as you need to fully understand it.
4. Highlight the main points (the main data)
5. Summarize the problem:
  - The data you have (with the appropriate units): write them on the left of your notebook.
  - In the middle of the problem, inside a square, write what you are looking for (what you are asked to calculate)
6. Talk to your partner, and explain each other what you have to find, and the way to find it. You have to come to an agreement (you can solve the problem in different ways too).
7. Start to solve the problem. Do this task individually, but when you finish comment the results with your partner.
8. Prepare a summary of the process you have followed to solve the problem for the plenary, and give the solutions (don't forget the units).

**LESSON 3. LINEAR FUNCTIONS. DIRECT VARIATION FUNCTIONS. CONSTANT FUNCTIONS.**

Approximate timing: 6 hours

ACTIVIY	INTERACTION	STUDENTS TASKS:	REMARKS
T.1, T.2, T.3.	Pairs/plenary	Read aloud the activities, work out the results in pairs, and report to the plenary	This activities are designed to fully understand and assimilate the theory
3	Pairs		Draw linear functions: with the same gradient, y- intercept and x-intercept in order to classify them.
23	Pairs/groups of 3/plenary	Power point presentation; power point contest.	<p>The power-point presentation must include: main points of the lessons (key sentences), word problems or examples and their solutions. Creativity is allowed (songs, games...).</p> <p>The time of the presentations must be divided in three parts: each student has to talk at least once, and for about 2 or 3 minutes.</p> <p>The minimum length of the presentation should be 10 minutes. It would be motivating to teach the students to prepare a power-point contest. They can decide the rating, and the rules for the contest.</p>

## RESOURCES

Algebra: Concepts and Applications. Glencoe. Mc Graw Hill.

<http://mathforum.org>

<http://www.mathgoodies.com>

<http://www.intmath.com>

<http://www.laredo.edu>

<http://math.rice.edu/>

<http://score.kings.k12.ca.us/lessons/functions.html>

<http://www.shodor.org/interactivate/activities/>

<http://ltcconline.net/greenl/courses/CAHSEE/FunctionsAlgebra/graphReading.htm>

<http://www.analyzemath.com/Graphing/GraphingLinearFunction.html>

<http://www.bymath.com/studyguide/fun/sec/fun9.htm>

<http://www.purplemath.com/modules/strtlneq.htm>

<http://aspire.cs.uah.edu/textbook/line.html>

<http://www.keypress.com/x2481.xml>

<http://cstl.syr.edu/fipse/GraphB/Unit6/Unit6.html>

<http://cstl.syr.edu/fipse/grapha/TOCbook.html>

<http://www.mathsisfun.com>

<http://www.math.com/school/subject2/practice/S2U4L3/S2U4L3Pract.html>

<http://library.thinkquest.org/2647/algebra/funcbasc.htm>

<http://www.studyzone.org/mtestprep/math8/d/varandexpl.cfm>

<http://rechneronline.de/function-graphs/>

<http://www.coolmath.com/Survivor-Algebra/02-how-survivor-algebra-works.html>