

Math 152 Teach Me! Project
Chapters 8 and 9

Assignment and guidelines:

1. Below, I have listed the main topics for each of the sections in chapters 8 and 9. Choose three topics from this list. All three topics should not come from the same chapter. (This is to insure that you have material from both chapters.) **Find three in-class activities (a game, worksheet, etc) that fit your topics, one activity for each topic.** Look in textbooks or the Internet or make something up. You will present your three activities to the class. Pick one of your activities to actually teach us, as if to students. You will give a brief presentation of the other two activities, as if to colleagues. You will also include a brief write-up of each activity. It is described below.
2. **You will turn in a write-up for each activity.** The write-up for each activity should include where you found it, grade level(s) for which it is appropriate, details on how you would present it to students, what you like and dislike about it, any difficulties you foresee students having, how much time you think students will need to complete it, a list of prerequisite skills students need, anything you did to amend the activity from the form you found, and anything else you deem relevant.
3. **You will be given a 15 – 20 minute time period to present your first activity.** You should present it as though the rest of the class, including me, are your students. If you would like, you can assume a specific grade level (that matches your career path) and choose activities as though you were teaching that grade level. Assuming the grade level of your eventual career is not mandatory. However, do indicate an appropriate grade level for each activity you present.
4. **Each person will be assigned a day. That person will be responsible for starting class on time, taking attendance, introducing their activity, and then going through it with the class. You should plan on 15 – 20 minutes for this.** After that, I will take over. We will use the remainder of our time to cover homework questions, take notes on chapters 8 and 9 material, and to give time for the other non-teaching presentations. You have the option of presenting all three activities on one day or spreading them out.
5. I will photocopy your activities for the whole class. Give them to me at least one class session prior to your teaching/presentation day. Make sure you tell me specific instructions that may be needed, such as if it should be run one-sided or you need extra blank paper.
6. Materials such as a board protractor, a board compass, and polyhedra models can be found. Please ask for materials you want and we will try to find them.
7. You will work both in class and outside of class to prepare.

8. I can help you make worksheets or other materials. Come see me in my office hours or talk to me in class during our work periods.

9. Your grade will be based on the effectiveness and organization of your lesson plan and activities as well as your behavior in the classroom (both as a student and a teacher).

10. If you write your own activity, please follow the guidelines below. If you use an activity that you did not write, comment on these points in your write-up. For instance, tell me how much each question would be worth and if the amount of white space seems sufficient.

a. Your completed activities should be word-processed, meaning I do not want any entirely hand-written activities. You should even try to draw any pictures needed on the computer in Word or some other program that you know. It is acceptable to have the occasional picture drawn in (by hand) after you print the activity if you cannot figure out how to do it on the computer. I can assist you to figure out how to draw pictures on the computer. Hand-written worksheets detract from your professional image and you want to avoid that.

b. The questions should be spaced out to provide enough white space for students to think and to write.

c. Your activity should be accurate and well-thought out. It should not have typos or badly-worded questions. Reading your questions out loud can help.

d. Denote the number of points each question is worth. Also, indicate the total number of points. You should take into account the relative importance and difficulty of your questions when you decide how many points each question is worth.

List of topics in chapters 8 and 9:

8.1 Statistical graphs of Categorical and Numerical Data

categorical versus numerical data
pictographs, dot (or line) plots, stem-and-leaf plot
outlier, mode
frequency table, histogram, bar graph, line graph, pie chart
continuous versus discrete data
scatter plot, negative versus positive association, trend line (or line of best fit)

8.2 Measures of Central Tendency and Variation

center, average, mean, median, mode
spread, range, first and third quartiles, interquartile range
variance, mean absolute deviation, standard deviation
box-and-whisker plot, five-number summary, outlier
normal distributions, normal curve, percentiles

8.3 Abuses of Statistics

misleading statistics, lies of omission
misleading graphs due to scale of axes, misleading pictographs, misleading graphs
due to three-dimensional drawings

9.1 Basic Notions

points, lines, planes
collinear, segment, ray
coplanar, skew, intersecting, concurrent, parallel
problem solving (geometric reasoning)
angles, vertex, adjacent, minutes, seconds, protractor, radian
acute, obtuse, right, straight angles
perpendicular

9.2 Polygons

simple, closed, polygon, convex, concave, vertex
interior angle, exterior angle, diagonal, opposite or adjacent sides
congruency, tick marks and arcs to show congruency
regular polygon, types of triangles, types of quadrilaterals, hierarchy

9.3 More About Angles

vertical angles, supplementary, complementary
transverse lines, theorem 9-3
constructing parallel lines
sum of interior angles in a triangle, theorem 9-4, theorem 9-5
sum of interior angles in a polygon, theorem 9-6

9.4 Geometry in Three Dimensions

simple closed surfaces

sphere, center, solid, polyhedron (polyhedra), faces, edges, vertices

prism, base, lateral faces, right versus oblique

regular polyhedra, convex

measures of interior angles and other details (page 618-619), nets

cylinder, cone, right versus oblique, altitude