

Unit 3: Collecting Data

Learning Targets and Success Criteria:

1. I can conduct a simulation to model a real-life scenario.
I know I can because:
 - o I can decide what the component of the simulation represents.
 - o I can decide how to model the outcomes with either single, double, triple, etc. digits and what they represent in the context of the problem.
 - o I can decide how to conduct a trial using the outcomes I specified and either a calculator or a random number table to generate random integers.
 - o I can decide what to record as my response variable in order to answer the question correctly.
 - o I can record my results using the RNT or with a chart if I use the calculator to generate random integers.
 - o I can write an appropriate conclusion **based on the results of the simulation.**

2. I can identify the different types of sampling.
I know I can because:
 - o I can describe these different sampling techniques:
 - Census
 - Simple Random Sample (SRS)
 - Stratified Random Sampling
 - Cluster Sampling
 - Multi-stage Sampling
 - Systematics Sampling
 - Convenience Sampling
 - Judgement Sampling

3. I can explain the difference between a biased and representative (unbiased) sample.
I know I can because:
 - o I can explain that the only way to get a representative sample is through random sampling!!!!!!
 - o I can describe the different types of bias and how they will affect the statistic (resulting in an over or underestimate) such as:
 - Over/Under-Coverage
 - Non-response Bias
 - Voluntary Response Bias
 - Response Bias

4. I can choose an appropriate sampling design in order to obtain a representative sample.
I know I can because:
 - o I can make sure I am using a random sampling technique.
 - o I can design a simulation that uses that technique.
 - o I can use randomly generated digits to choose a representative sample.

5. I can identify different types of studies.
I know I can because:
 - o I can identify the two types of observational studies:
 - Prospective observational study
 - Retrospective observational study
 - o I can identify an experiment by deciding if there are treatment groups.

6. I can design an appropriate experiment.
I know I can because:
 - o I can determine the subjects in the experiment.
 - o I can decide if I should use blocking to control random sources of variation.
 - o Using the different factors and levels, I can decide the different treatments.
 - o I can randomly assign the subjects to the treatment groups.
 - o I can decide what variable to compare amongst the treatment groups.
 - o I can decide whether or not to use blinding in the experiment to control bias.
 - o I can draw a diagram to represent a designed experiment.

7. I can determine the difference between a lurking variable and a confounding variable.
I know I can because:
- o I can explain that lurking variables are associated with observational studies (associations between 2 variables) and are hidden variables that are attributing to the relationship. Was it the x variable that caused y to increase or decrease?...or was it some other hidden variable causing the changes???
 - o I can explain that confounding variables are associated with experiments and are variables that we cannot separate from the variable we are trying to study. Was it this variable that caused the differences in the treatment groups...or was it the variable we were manipulating???
 - o I can explain that controlled experiments are the only way to prove a cause and effect relationship between variables!!!!!!

Day 1

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #1 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Ch. 11 notes

Summarizers:

Selected Problems from Handout

Homework:

none

Day 1a

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #1 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Basketball Simulation Examples

Summarizers:

Selected Problems from Handout

Homework:

P. 265 #'s 1-6

Day 2

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #1 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Parents Night & 21 Die Simulation Examples with Random Number Tables

Summarizers:

Selected Problems from Handout

Homework:

P. 265 #'s 7,8,15,17,19,31

Day 2a

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #1 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Practice Simulation (Batteries)

Classwork (Sherlock Holmes & Bean Bag Toss Simulations)

Summarizers:

Selected Problems from Handout

Homework:

Finish WS

Day 3

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #1 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

ESP Simulation Task

Summarizers:

Selected Problems from Handout

Homework:

P. 266-267 #'s 28, 39

Day 3b (over 3 Days)

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #1 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Day 1: Oil Well and 4-H Project Simulations

Day 2: 2001 FRQ & p. 267 #'s 36 & 40

Day 3: Rose Parade and School Project Quiz Review

Summarizers:

Selected Problems from Handout

Homework:

STUDY FOR CH. 11 SIMULATION QUIZ

Day 3c

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #1 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

CH. 11 Simulation Quiz

Summarizers:

Selected Problems from Handout

Homework:

None

Day 4

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-4 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

CH. 12 Sampling Techniques and Bias Notes

Summarizers:

Selected Problems from Handout

Homework:

P. 288 #'s 1-27 odd

Day 5

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-4 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

P. 288 #'s 2-28 even

Summarizers:

Selected Problems from Handout

Homework:

none

Day 6

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-4 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Random Rectangles Activity
Ch.12 Practice WS (Drug Testing)

Summarizers:

Selected Problems from Handout

Homework:

Finish WS

Day 6b (2 Days)

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-4 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Various Ch. 12 WS's Collecting Data and Bias Quiz Review

Summarizers:

Selected Problems from Handout

Homework:

Study for CH. 12 QUIZ

Day 6c

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-4 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

CH 12 Collecting Data and Bias Quiz

Summarizers:

Selected Problems from Handout

Homework:

None

Day 7

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 5-7 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

CH 13 Observational Studies and Experiments Notes

Summarizers:

Selected Problems from Handout

Homework:

None

Day 7b

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 5-7 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

CH 13 Practice (Chubby Dogs Experiment)

Summarizers:

Selected Problems from Handout

Homework:

P. 312 #'s 1-9 odd, 43

Day 8

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 5-7 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Fish Tanks FRQ Practice

Basketball & Blood Pressure Experiments Practice

Summarizers:

Selected Problems from Handout

Homework:

P. 317 #'s 1-19 odd

Day 8b

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-7 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Rolling Down the River Task

Various Ch. 13 Review WS's

Summarizers:

Selected Problems from Handout

Homework:

Start Studying for Unit 3 Test

Day 9

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-7 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Finish Rolling Down the River Task

Various Ch. 13 Review WS's

Summarizers:

Selected Problems from Handout

Homework:

Start Studying for Unit 3 Test

Day 9a

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-7 (see above)

Activator

AP Exam MC Practice Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Multiple Choice Test Review Practice & 3 Practice Tests

Summarizers:

Selected Problems from Handout

Homework:

Study for Unit 3 Test

Day 10 & 11

Standard: Collecting Data (12% - 15% of AP Exam)

Learning Target(s) & Success Criteria: #'s 1-7 (see above)

Activator

Experimental Design Review Question

Direct Instruction, Guided Practice, Practice/Differentiation:

Day 1: 10 MCQ's & 1 FRQ

Day 2: 4 FRQ's

Summarizers:

Selected Problems from Handout

Homework:

Study for Unit 3 Test and Start Reading Ch. 14 Probability