NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Factory Data Interpretation Sheet #1: Part A

Measures of Center: Mean and Median

Critical Question #1

On average, how many kits can one member of the group package in 30 minutes?

Instructions:

Calculate the **mean** number of kits that employees could package in 30 minutes. To do this, add all the values together, and divide by the number of values. Record this number below, and also in the box at the bottom right of the *Factory Data Sheet #1*.

Mean number of kits produced per person in 30 minutes: _____

On average, how many kits can the whole group together package in 30 minutes?

Instructions:

Calculate the number of kits made by the whole group in 30 minutes by multiplying the mean per person by the number of people in the group. There are 9 people in this group. Record this number below and also in the box at the bottom of the *Factory Data Sheet #1*.

Mean number of kits produced by the group in 30 minutes: _____

Critical Question #2

Ting and Monique are very new to the job. The other workers are much more experienced. Does this make a difference in how many kits they can package in 30-minute shifts?

Instructions:

1) Using the data about each of the workers, create a Factory Data Histogram on your *Factory Data Sheet #1*. Use a **blue pencil** when you plot Ting and Monique's data, and a **red pencil** for the other employees.
2) You have data for three separate time periods for each person. Add up the total number of kits produced by each person, and record the number on that person's row in the column labeled. "Total # produced by person."
3) Now answer the question below:

Does experience affect the number of kits people can package?

What evidence tells you that?

_____

_____

_____

How does the median compare to the mean?

Calculating the **median** and comparing it to the **mean** is a mathematical way to decide if there are big differences between different groups in your data.

Instructions:

To determine the Median, write each number of kits packaged, in order from smallest to largest, in the data ordering box at the bottom of the *Factory Data Sheet #1*. If the number of data points is odd, find the one in the exact center. If the number of points is even, take the average between the two middle numbers. Record this number below and also in the box at the bottom right of the *Factory Data Sheet #1*.

Median number of kits produced by the group in 30 minutes: _____

NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Factory Data Interpretation Sheet #1: Part B

Range, Mode, and Consistency over Time

Critical Question #3:

Which workers are most consistent in the number of kits they package in 30 minutes?

Instructions:

The **range** is a measure of how consistent the data is. The range is calculated by subtracting the smallest value in a group from the largest. Determine the range for each person using the three time points. Record it on each person's row, in the column labeled "range per person." Then answer the question below:

Which three employees are most consistent in the number of kits they package in 30 minutes? What evidence tells you that?

_____

_____

How consistent is the whole group in how many kits they package in 30 minutes?

Instructions:

Determine the range for the whole data set. Record it in the box at the bottom of the *Factory Data Sheet #1*.

What is the most common, or frequent, number of kits that workers can produce in 30 minutes?

Instructions:

By analyzing the Factory Data Histogram, determine the **Mode**, and record in the box at the bottom of the **Factory Data Sheet #1**.

Critical Question #4

Is the mean number of kits packed by all employees the same at all times of the day?

Instructions:

Your team collected data from three time periods during the day. Calculate the mean for each time period by adding up the number of kits packaged by all employees during that period, and dividing by the number of employees. Record these numbers in the row labeled "Mean per time period," and answer the questions below.

During which time period were the employees fastest?

_____

During which time period were the employees slowest?

_____

What evidence tells you that?

_____

_____

NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Letter to Ms. Casandra Hinkleberry

Date:_____

Dear Ms. Hinkleberry,

My class researched different procedures for packaging *Away from Home Hardware Kits*. We compared the individual assembly procedure to the assembly line procedure. In our research, we found that:

_____

_____

Based on our research, we decided that ***Just Like Home*** **should** / **should not** *(circle one)* change the packaging process to the assembly line. We think this because:

_____

_____

Sincerely,

_____

Factory Data Interpretation Sheet #2: Part A

NAME: _____ **DATE:** _____

Measures of Center: Mean and Median

STUDENT #: _____ **TEACHER:** _____

Critical Question #1

On average, how many kits can each team package in 30 minutes?

Instructions:

Calculate the mean number of kits that a team could package in 30 minutes. To do this, add all the values together, and divide by the number of values. Record this number below, and also in the box at the bottom right of the *Factory Data Sheet #2*.

Mean number of kits produced per team in 30 minutes: _____

On average, how many kits can the whole group together package in 30 minutes?

Instructions:

Calculate the number of kits made by the whole group in 30 minutes by multiplying the mean per team by the number of teams. There are 3 teams in this study. Record this number below and also in the box at the bottom right of the *Factory Data Sheet #2.*

Mean number of kits produced by the group in 30 minutes: _____

Critical Question #2

There have been a couple of changes in the people at the factory. Rosalinda is brand new and just learning the procedure. The other workers are much more experienced. Does this make a difference in how many kits the team can package in 30-minute shifts?

Instructions:

1) Using the data about each of the teams, create a factory data histogram on your *Factory Data Sheet #2***.** Use a **blue pencil** when you plot Rosalinda's team data, and a **red pencil** for the other teams.
2) You have data for three separate time periods for each team. Add up the total number of kits produced by each team, and record the number on that team's row in the column labeled "Total # produced by team."
3) Now answer the question below:

Does having one inexperienced person affect
the number of kits a team can package at this factory?
What evidence tells you that?

_____

_____

How does the median compare to the mean?

Calculating the **median** and comparing it to the **mean** is a mathematical way to decide if there are big differences between different groups in your data.

Instructions:

To determine the Median, write each number of kits packaged, in order from smallest to largest, in the data ordering box at the bottom of the *Factory Data Sheet #2.* If the number of data points is odd, find the one in the exact center. If the number of points is even, take the average between the two middle numbers. Record this number below and also in the box at the bottom right of the *Factory Data Sheet #2.*

Median number of kits produced by the group in 30 minutes: _____

NAME: _____ **DATE:** _____

STUDENT #: _____ **TEACHER:** _____

Factory Data Interpretation Sheet #2: Part B

Range, Mode, and Consistency over Time

Critical Question #3:

Which teams are most consistent in the number of kits they package in 30 minutes?

Instructions:

The **range** is a measure of how consistent (similar) the data is. The range is calculated by subtracting the smallest value in a group from the largest. Determine the range of kits packaged during a 30-minute period for each team. Record it on each team's row, in the column labeled "range per team." Then answer the question below:

Which team is the most consistent in the number of kits they package in 30 minutes?

What evidence tells you that?

_____

_____

How consistent is the whole group in how many kits they package in 30 minutes?

Instructions:

Determine the range for the whole data set. Record it in the box at the bottom of the *Factory Data Sheet #2.*

What is the most common, or frequent, number of kits that teams can produce in 30 minutes?

Instructions:

By analyzing the Factory Data Histogram, determine the **mode**, and record in the box at the bottom of the *Factory Data Sheet #2.*

Critical Question #4

Is the average number of kits packed by all teams the same at all times of the day?

Instructions:

Your team collected data from three time periods during the day. Calculate the Mean for each time period by adding up the number of kits packaged by all teams during that period, and dividing by the number of teams. Record these numbers in the row labeled "mean per time period" and answer the questions below.

During which time period were the teams fastest?

_____

During which time period were the teams slowest?

_____

What evidence tells you that?

_____

_____