

## MiSP Human Growth and Development Worksheet #2 L2

Name \_\_\_\_\_

Date \_\_\_\_\_

### HEAD CIRCUMFERENCE AND LENGTH FOR INFANTS AGES BIRTH TO 36 MONTHS

#### Introduction:

A blog dealing with sizes of babies' heads had the following statement: "A baby's head is disproportionately large compared to its body and thin neck."

#### Do babies' bodies catch up with their heads as they grow and develop?

The attached chart lists babies' median (50<sup>th</sup> percentile) length, in centimeters, and median head circumference, also in centimeters. This data was collected by the Centers for Disease Control and Prevention. As in the last worksheet, measurements from many, many babies in the United States were used to calculate these numbers.

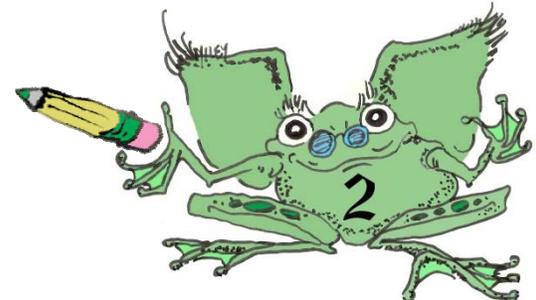
#### Procedures:

Review the data on the chart, "Babies' Median Length and Head Circumference." It lists the age, in months, from 0 to 36 and the median body length (cm) and median head circumference (cm) every two months for boys and girls. As in the last worksheet, median is also called the 50<sup>th</sup> percentile. That means that half of the children have lengths and head circumferences less than the 50<sup>th</sup> percentile length and head circumferences, and half of the children have measurements greater than the 50<sup>th</sup> percentile.

#### Graph the data:

Graph the boys' or girls' data on the next page to show the relationship between age (months) and the two physical measurements, length (cm) and head circumference (cm). Your teacher will assign you boys or girls or let you choose.

- Label the  $x$ -axis with age (months).
- Label the  $y$ -axis with length (cm) and head circumference (cm).
- Graph the data using two different colors: one for length and one for head circumference. Add a key to the graph.
- Connect the data points.
- Give the graph a title: "Median Length and Head Circumference of U.S. Baby Boys *or* Girls"





## Discussion Questions:

1. How is the shape of the growth curve for length from birth to 36 months similar to the shape of the growth curve for head circumference over the same time period?

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2. How is the shape of the growth curve for length different from the shape of the growth curve for head circumference?

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3. During what month range do babies have the most growth in length (the fastest growth rate)?

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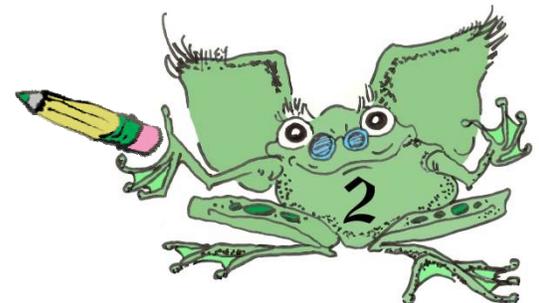
4. During what month range do babies have the most growth in the circumference of their heads (the fastest growth rate)?

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5. Use the graph to estimate the median (50<sup>th</sup> percentile) length and head circumference of babies who are 13 months old:

length at 13 months - \_\_\_\_\_

head circumference at 13 months - \_\_\_\_\_



6. Between 0 months and 36 months, by what percent did median babies' length and head circumference increase?

$$\% \text{ increase} = \frac{\text{36 Month Measurement} - \text{0 Month Measurement}}{\text{0 Month Measurement}} \times 100$$

Work Space for Length

% Increase in Length:

Work Space for Head Circumference

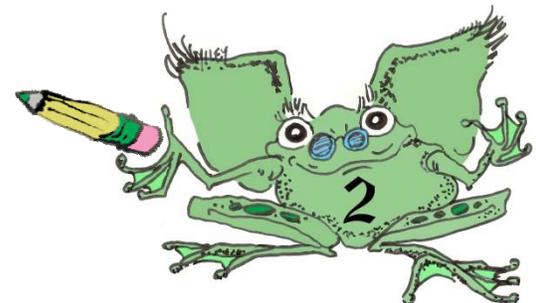
% Increase in Head Circumference:

7. Think about your answers to #1-5. Based on the data and graphs, do babies' bodies catch up with their heads as they grow and develop? Explain your answer.

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8. Compare the growth in length and the growth in circumference of the head in the same age range on your graph by calculating the unit rate of change (slope) for each set of data **from 26 to 36 months**. Draw a best-fit line, if needed.

**Unit Rate of Change =**

$$\frac{\Delta y}{\Delta x} = \frac{(y_2 - y_1)}{(x_2 - x_1)} = \frac{\Delta \text{Measurement (length or head circumference in cm)}}{\Delta \text{Age (months)}} \times 100$$

Graphed data Ordered pairs	$\Delta$ Size (cm) $\Delta y$	$\Delta$ Age (months) $\Delta x$	Unit Rate of Change (slope) $\Delta y / \Delta x$
Length (26 mo. _____ ) (36 mo. _____ )			
Head circumference (26 mo. _____ ) (36 mo. _____ )			

9. Based on the unit rates of change, which measurement is increasing faster—length or head circumference?

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10. Does your answer to #9 support your answer to #7 or go against it? Explain.

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