**Main Ideas/Questions**

**Warm-Up**

**What am I learning today?**

**Main Ideas/Questions**

**Warm-Up**

**Notes**

What margin of error is associated with a sample size of 1400?

In a sample 3200 HS Seniors, 2080 people responded with "yes" to "Are you ready to graduate?". Write a confidence statement explaining the results of the survey.

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<table>
<thead>
<tr>
<th>Sample Design</th>
<th><strong>Probability Sample</strong> – A sample chosen by chance</th>
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<tbody>
<tr>
<td></td>
<td><strong>Sampling Frame</strong> – A list of individuals from which we can draw our sample</td>
</tr>
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<td></td>
<td>EX. CLASS ROSTER</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Sampling Errors</th>
<th><strong>Sampling Errors</strong> – Errors that are caused by the act of taking a sample. They cause the sample statistic to be different from the population parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1) <strong>Random Sampling Error</strong> – This error is caused by chance in selecting a random sample. This type of error is included in the margin of error in the confidence statement</td>
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<td>2) <strong>Undercoverage</strong> – Occurs when some groups in the population are left out when choosing a sample</td>
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<tr>
<th>Examples</th>
<th><strong>What kind of error?</strong></th>
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<tbody>
<tr>
<td>a) Dr. Giles asked Freshmen and Juniors their opinions on the Cafeteria food. <strong>Undercoverage</strong> – left out Sophomores and Seniors</td>
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<tr>
<td>b) 300 male students at Wheeler were asked their heights and a confidence statement was written about all teenage boys and their heights. <strong>Random sampling error</strong> – included w/confidence statement</td>
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</table>
**Topic:** Types of Errors

**Main Ideas/Questions**

**Non-Sampling Errors** – Errors **not** related to the act of taking a sample. They can be present even in the population parameter.

1) **Processing Error** – Mistakes in mechanical tasks such as doing arithmetic or entering responses into a computer.

2) **Response Error** – When someone gives an **incorrect** response (lying, forgetting, or just guessing at an answer).

3) **Non-response** – Failure to obtain data from an individual selected for a sample. Most nonresponse errors happen because some individuals can’t be contacted or they refuse to cooperate.

4) **Question-Wording Bias** – Sampling bias where the **wording** of a question causes favoring for a certain outcome.

**What kind of error?**

a) The subject lies about past drug use.
   **response error**

b) Johnny walked around Wheeler High School and surveyed students asking,
   “How dumb is it to eat vegetables?”
   **question wording bias**

c) Data is collected by surveying people as they walk into the mall. Several participants refuse to participate.
   **nonresponse error**

a) A typing error is made in recording the data.
   **processing error**

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**Non-Biased Sampling**

- SRS
- Systematic
- Stratified

**Biased Sampling**

- Convenience
- Voluntary

**Sampling Errors**

- Random Sampling Error
- Undercoverage

**Non-Sampling Errors**

- Processing Error
- Response Error
- Nonresponse Error
- Question-Wording Bias

**Flowchart**

Gathering Data Through Surveys