Volume of air space in sand and actual volume of sand

Question: Which grain of sand allows for a greater % of air space?

Hypothesis:

Materials:
- Water
- Beaker
- Sand
- (2) 25 mL Graduated cylinder

Procedure:
1. Obtain 10 mL of sand in 25 mL graduated cylinder. Record in column A.
2. Obtain 15 mL of water in 25 mL graduated cylinder. Record in column B.
3. Add water to sand. Record total volume in column D.
4. Subtract (Total Volume if no air space - Measured volume of sand, and water.) This equals your volume of air space. Record in column E.
5. Subtract (Volume of Sand and Air – Volume of Air. This is your true volume of sand. Record in column F.
6. Divide (Volume of air / Volume of sand and Air). This is your Air %. Record in column G.

Results:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C (A+B)</th>
<th>D</th>
<th>E (C-D)</th>
<th>F (A-E)</th>
<th>G (E/A x 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of Sand and Air</td>
<td>Volume of Water</td>
<td>Total Volume if no air space.</td>
<td>Measured volume of sand, mixed with water.</td>
<td>Volume of air.</td>
<td>Volume of sand.</td>
<td>% Air space</td>
</tr>
</tbody>
</table>

![Sand and Air](image1.png) ![Water](image2.png) ![Sand Air and Water](image3.png)
Trial 2:
Do the experiment again using different values for sand and water.

Sand _______
Water_______

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<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
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Trial 3:
Do the experiment again using different values for sand and water.

Sand _______
Water_______

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Avg. % of air space from 3 trials = _______