

Innovating education



EDUCACION

Talks at Google
Cambridge, MA, 14 November 2014



Innovating education



@eric_mazur

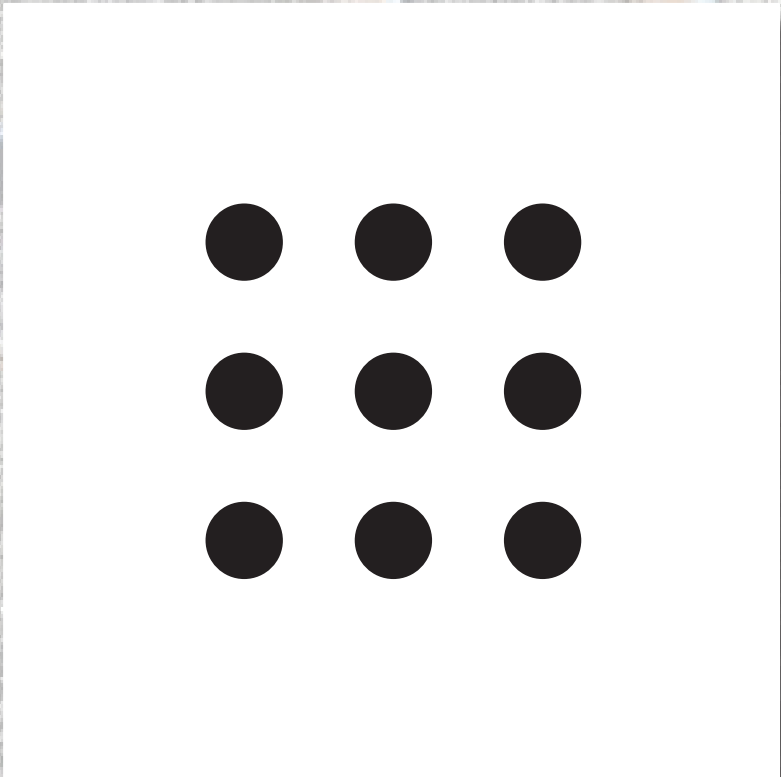
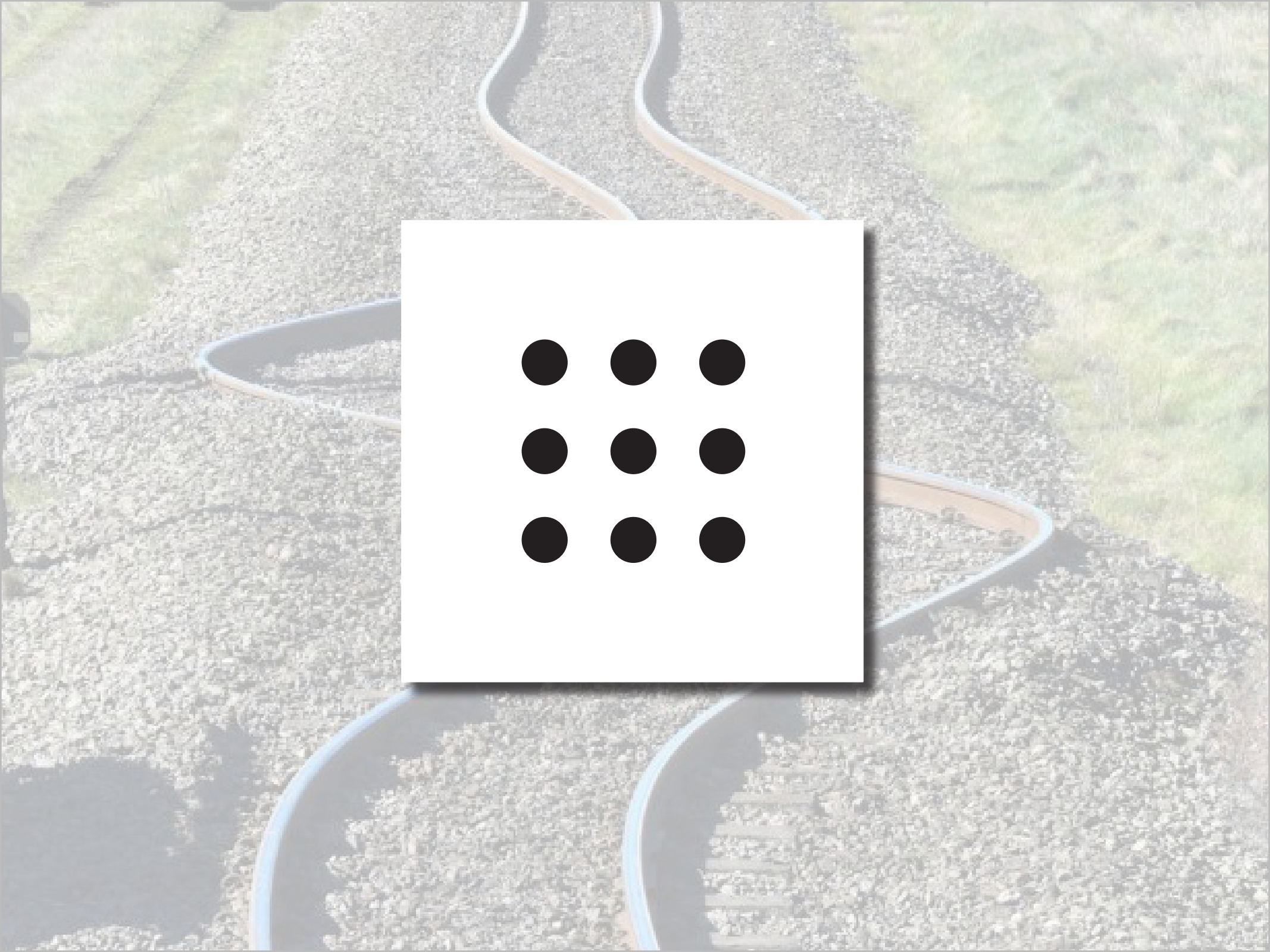
EDUCATION

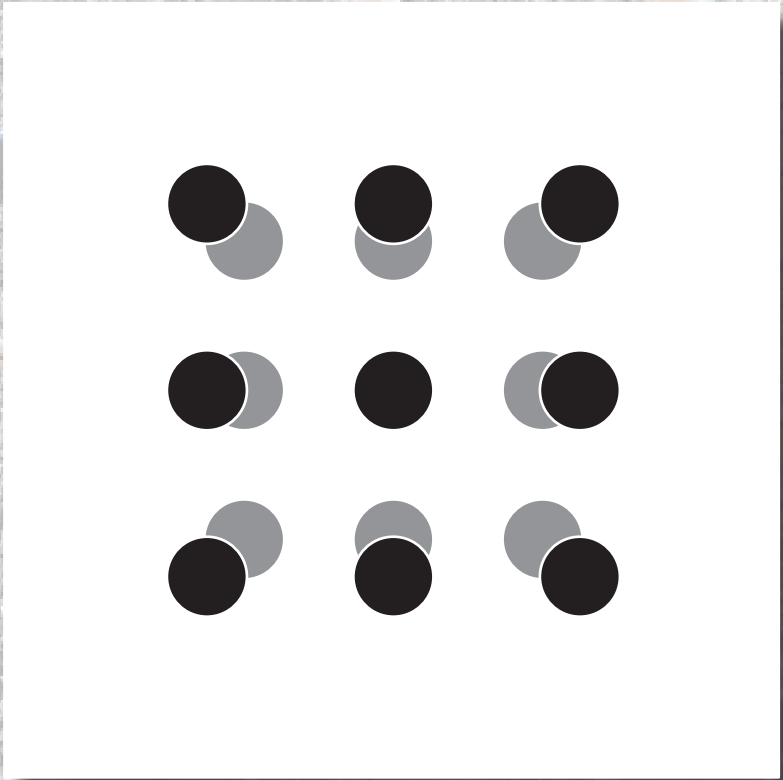
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A photograph of a railway track with a wavy, undulating track bed, illustrating thermal expansion. The track is composed of gravel and wooden sleepers. The text "thermal expansion" is overlaid on the image.

thermal expansion

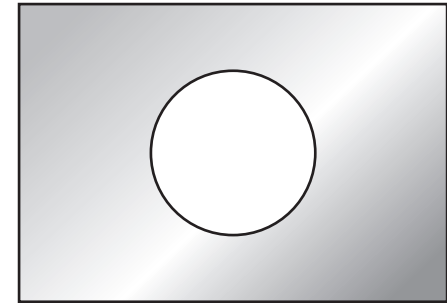




all of them!

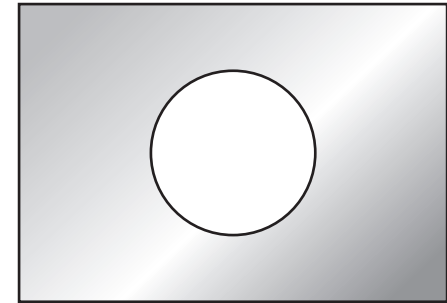


**Consider a rectangular metal plate
with a circular hole in it.**



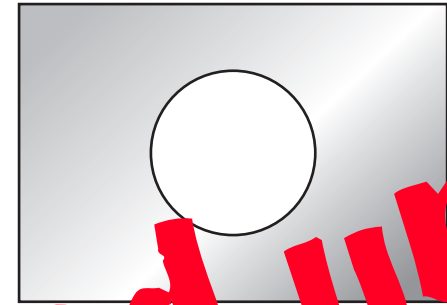
Consider a rectangular metal plate with a circular hole in it.

When the plate is uniformly heated, the diameter of the hole



- 1. increases.**
- 2. stays the same.**
- 3. decreases.**

Consider a rectangular metal plate with a circular hole in it.



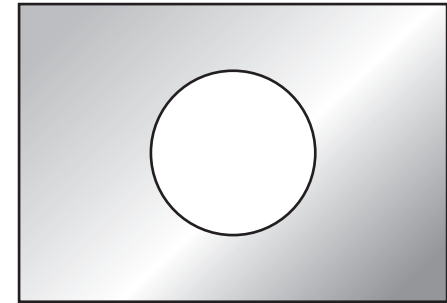
When the plate is uniformly heated, the diameter of the hole

1. increases.
2. stays the same.
3. decreases.

you got all fired up!

Consider a rectangular metal plate with a circular hole in it.

When the plate is uniformly heated, the diameter of the hole



- 1. increases.**
- 2. stays the same.**
- 3. decreases.**

Before I tell you the answer, let's analyze what happened.

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You...

Before I tell you the answer, let's analyze what happened.

You...

1. made a commitment

Before I tell you the answer, let's analyze what happened.

You...

- 1. made a commitment**
- 2. externalized your answer**

Before I tell you the answer, let's analyze what happened.

You...

- 1. made a commitment**
- 2. externalized your answer**
- 3. moved from the answer/fact to reasoning**

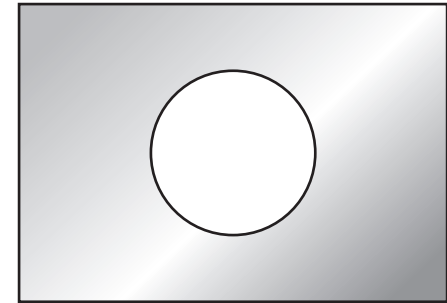
Before I tell you the answer, let's analyze what happened.

You...

- 1. made a commitment**
- 2. externalized your answer**
- 3. moved from the answer/fact to reasoning**
- 4. became emotionally invested in the learning process**

Consider a rectangular metal plate with a circular hole in it.

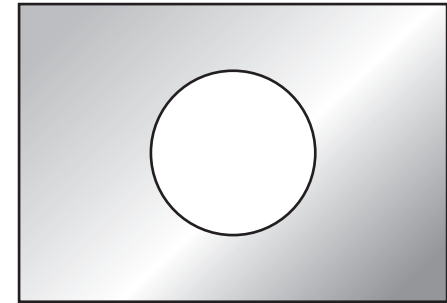
When the plate is uniformly heated, the diameter of the hole



- 1. increases.**
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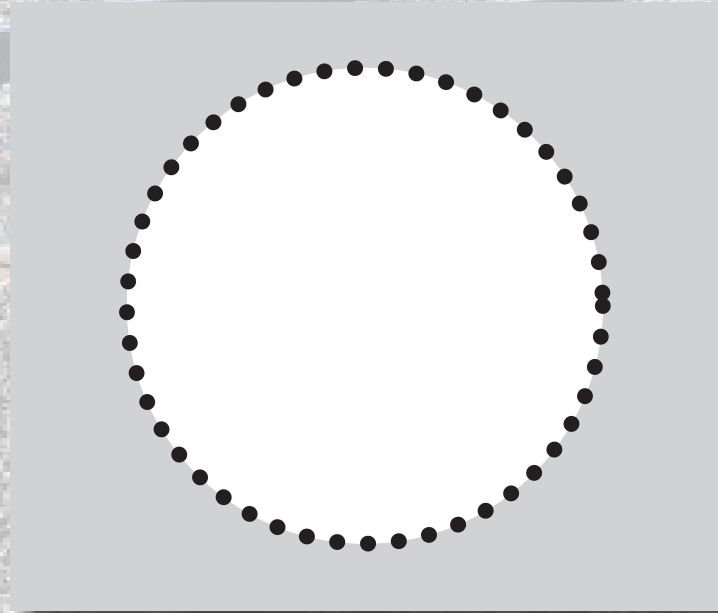
Consider a rectangular metal plate with a circular hole in it.

When the plate is uniformly heated, the diameter of the hole

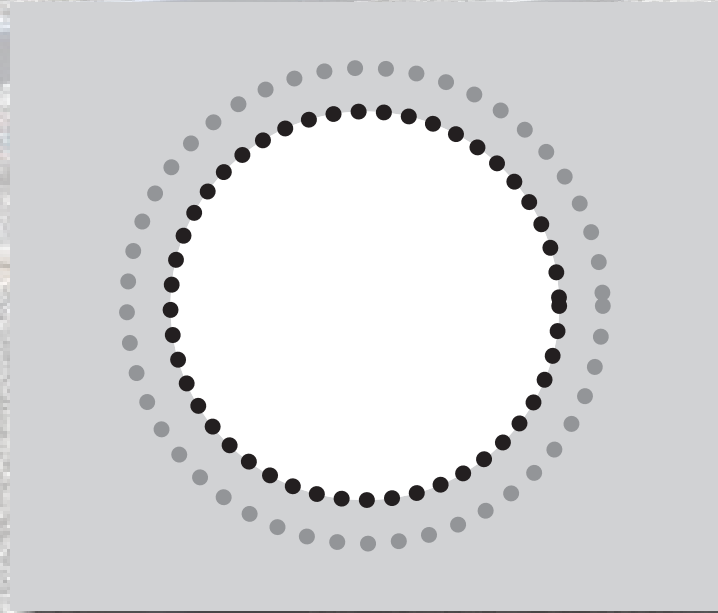


- 1. increases. ✓**
2. stays the same.
3. decreases.

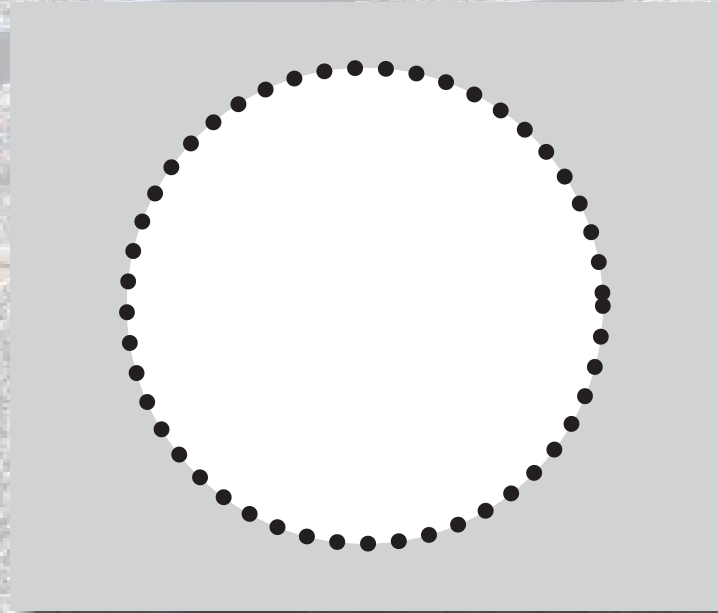
consider atoms at rim of hole



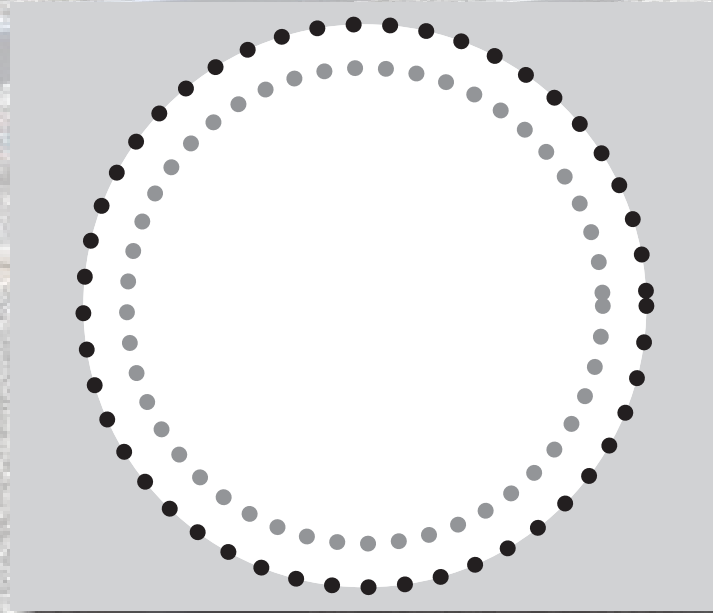
consider atoms at rim of hole



consider atoms at rim of hole



consider atoms at rim of hole



consider atoms at rim of hole

you won't forget this

A circular graphic with a dotted border, containing the text "you won't forget this" in a red, bold, sans-serif font. The graphic is centered on a grey rectangular background.

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