

Measurement

Length, Perimeter, Volume, Mass

Dynamic Learning Maps® (DLM®) PD Webinar
Center For Literacy & Disability Studies
February 19, 2019

Initial & Distal Precursors

Across grades you will notice that many of the Initial and Distal Precursors are the same given similar contexts.

M.EE.7.G.4

Determine the perimeter of a rectangle by adding the measures of the sides

Linkage Levels

Initial Precursor:

- Recognize attribute values

Distal Precursor:

- Describe measurable attributes
- Recognize measurable attributes

G-GPE.7

Find perimeter and area of squares and rectangles to solve real-world problems.

Linkage Levels

Initial Precursor:

- Recognize attribute values

Distal Precursor:

- Describe measurable attributes
- Recognize measurable attributes

But What Does That Mean!

In this case, measurement skills all start with the same foundation understandings.

Attribute Values

- Color
- Shape
- Size
- Weight
- Texture

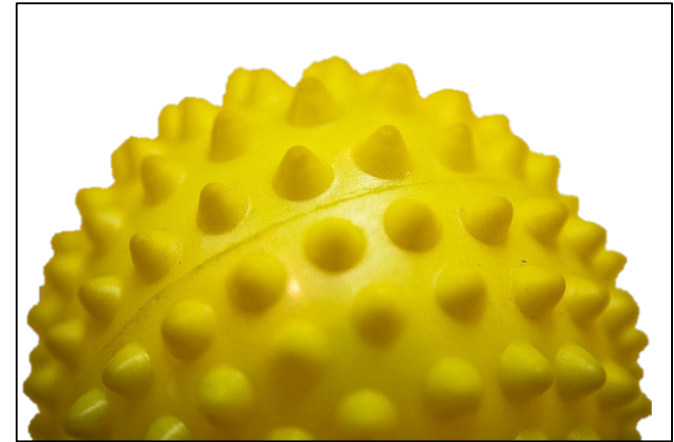
Teachers will provide many opportunities for students to notice specific attributes of objects. Draw the students' attention to new attribute.

New Attribute

Attribute + Attribute + Comparison =
Generalization

Presenting the New Attribute

- Present item with attribute you want to teach
 - Name the attribute
Bumpy
- Allow student to observe, feel or otherwise interact with the item naming the attribute every 10 seconds or so.



Presenting the New Attribute

- Present a similar item with attribute
 - Name the attribute
Bumpy
- Allow student to observe, feel or otherwise interact with the item naming the attribute every 10 seconds or so.



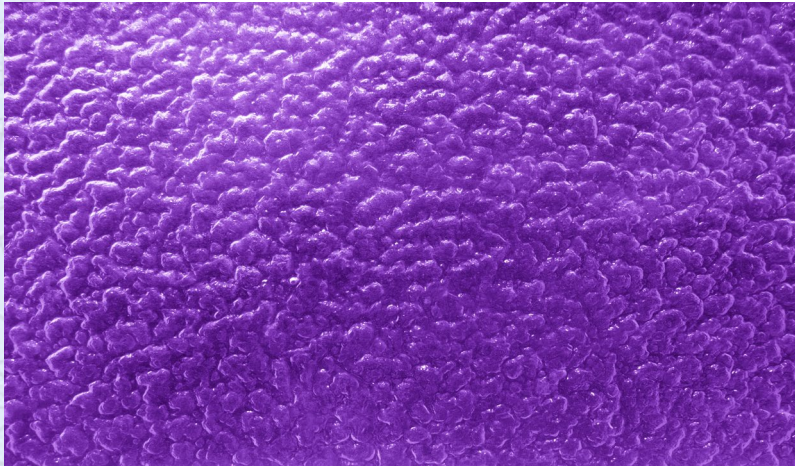
Presenting the New Attribute

- Then present a different item with same attribute
 - Name the attribute
Bumpy
- Allow student to observe, feel or otherwise interact with the item naming the attribute every 10 seconds or so.



- These three steps are presented during the same lesson.

New Attribute Across Multiple Items



Remember to name the
attribute. In this case:
Bumpy

You can work on more than one attribute at a time, just not during the same lesson.

- Rationale: During the lesson we want all the students attention on, **what makes these objects that attribute**, in this case, bumpy.
- In the morning lesson I might work on the attribute of texture or size and in the afternoon the attribute color or weight.

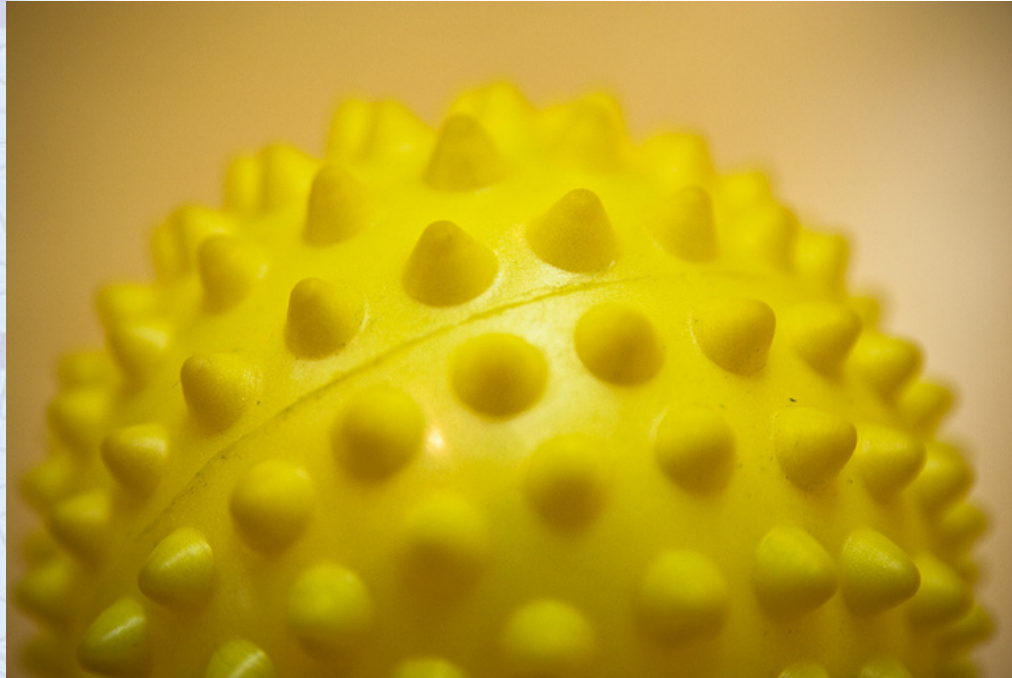
Comparing across attributes doesn't happen until the student has at least two attributes he/she is familiar with.

Notice I didn't say two attributes the student has mastered!

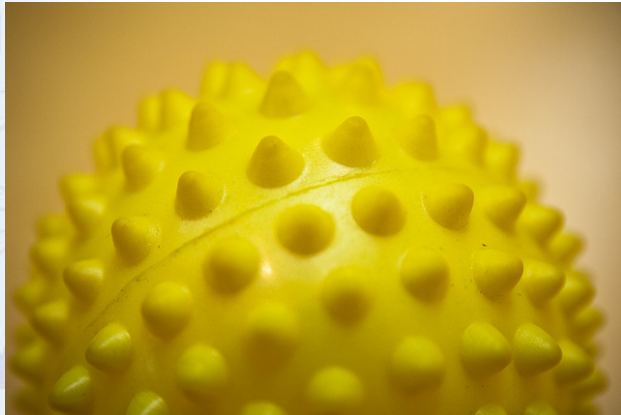
Familiar Attribute

Now we build in expressive language and comparison with another familiar attribute.

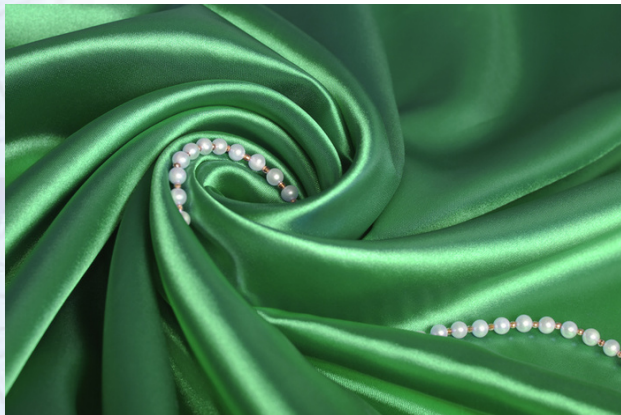
“Familiar” Attributes



Adults demonstrate the descriptive math language, bumpy and smooth, and demonstrate how the student might use their communication system to talk about what they are experiencing. Demonstrate symbolic language!



This feels bumpy!

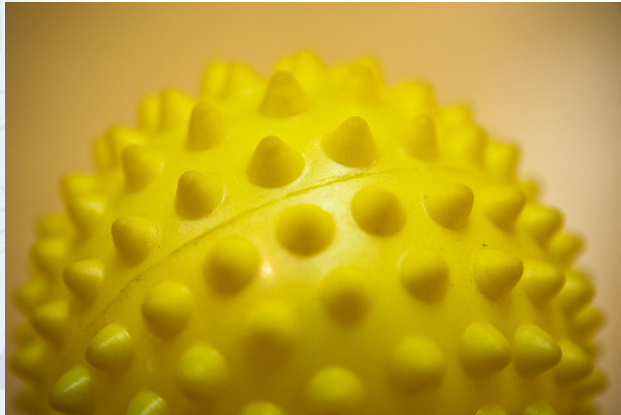


This feels smooth!

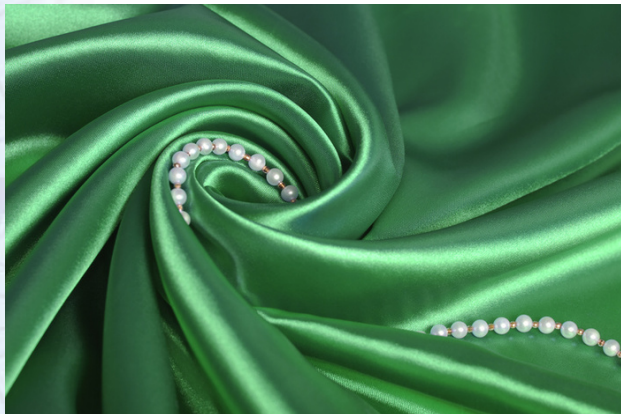
Not same

like 	want 	get 	make 	good 	more 	
not 	go 	look 	turn 	help 	different 	
	he 	open 	do 	put 	same 	
you 	she 	that 	up 	all 	some 	
it 	here 	in 	on 	can 	finished 	
where 	what 	why 	who 	when 	stop 	

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This feels bumpy!



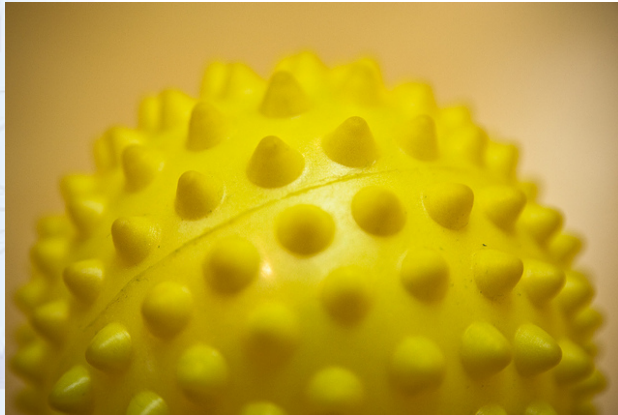
This feels smooth!

Different!

like 	want 	get 	make 	good 	more 	
not 	go 	look 	turn 	help 	different 	
I 	he 	open 	do 	put 	same 	
you 	she 	that 	up 	all 	some 	
it 	here 	in 	on 	can 	finished 	
where 	what 	why 	who 	when 	stop 	

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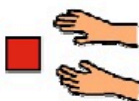



Bumps on it



This feels bumpy!

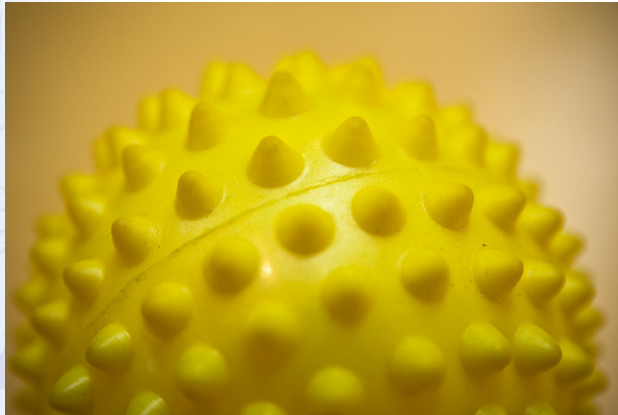


This feels smooth!

like 	want 	get 	make 	good 	more 	
not 	go 	look 	turn 	help 	different 	
I 	he 	open 	do 	put 	same 	
you 	she 	that 	up 	all 	some 	
it 	here 	in 	on 	can 	finished 	
where 	what 	why 	who 	when 	stop 	

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Bumps not on it



This feels bumpy!

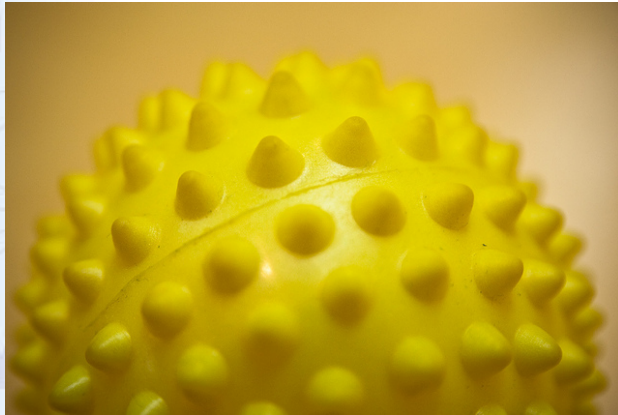


This feels smooth!

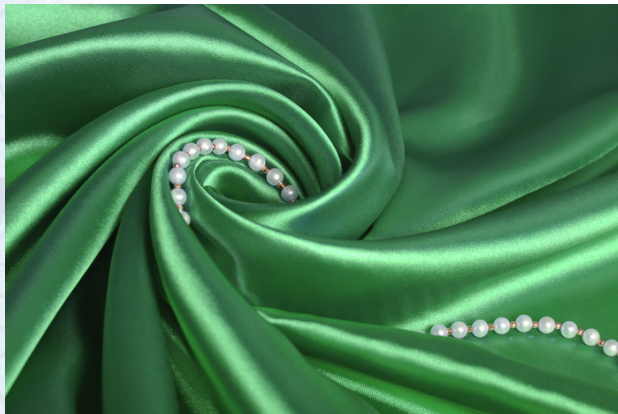
like 	want 	get 	make 	good 	more 	
not 	go 	look 	turn 	help 	different 	
I 	he 	open 	do 	put 	same 	
you 	she 	that 	up 	all 	some 	
it 	here 	in 	on 	can 	finished 	
where 	what 	why 	who 	when 	stop 	

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All on here



This feels bumpy!



This feels smooth!

like 	want 	get 	make 	good 	more 	
not 	go 	look 	turn 	help 	different 	
I 	he 	open 	do 	put 	same 	
you 	she 	that 	up 	all 	some 	
it 	here 	in 	on 	can 	finished 	
where 	what 	why 	who 	when 	stop 	

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Attribute Values

- Color
- Shape
- Size
- Weight
- Texture

Teach attributes through explicit instruction and repetition with variety but also take advantage of those incidental teaching moments. Pushing the wheel chair over gravel. This is BUMPY. In the school hallway, this is SMOOTH.

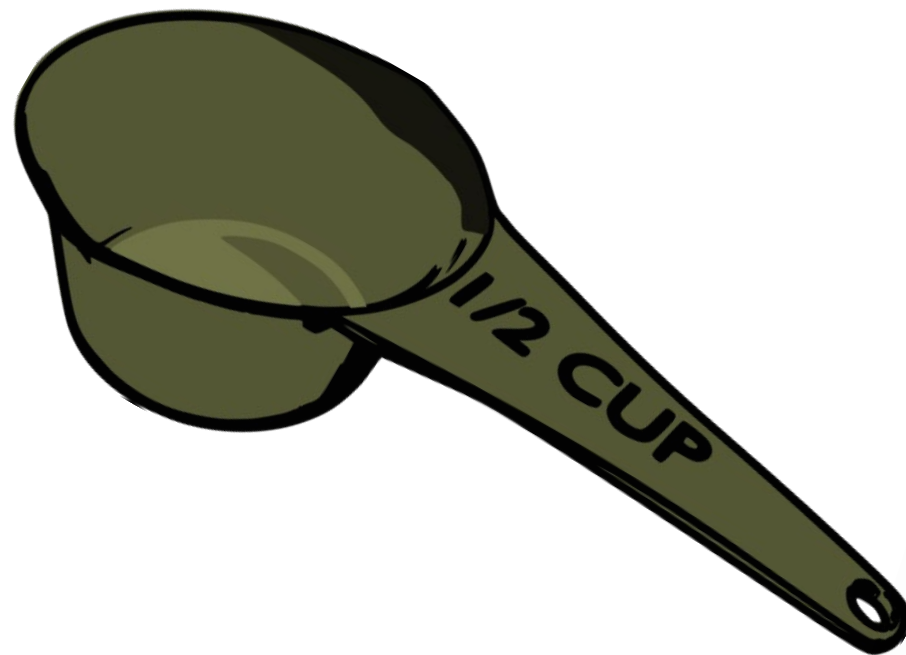
Distal: Recognize and Describe Measurable Attributes

- Once students are comparing attributes then we add the numbers through measurement.
 - Counting
 - Measuring
 - Weighing
 - Capacity

Examples

Tiles or Cubes

1	2	3	4	5	6	7	8	9	10	11	12
1	2	3	4	5	6	7					



Measurement Involves

- Identifying an attribute to be measured (e.g., length, mass, area)
- Then use definable, consistent units to find the “howmuchness” of the attribute.

It is important for students to engage in learning situations that help them understand different measurable attributes and that teach them to measure those attributes in meaningful ways.

Continue to Build Language

- Use the math vocabulary for measurement (e.g., heavy/light, big/small, long/short).
- But also use the students communication system to demonstrate what they might say (given the words they have available to them all day every day) to talk about the attribute being measured.

THANK YOU!

For more information: www.dynamiclearningmaps.org

For Professional Development:
www.dlmpd.com