TI-*nspire*™

Patterns in Area
by – Susan Lee

Activity overview
Students will explore what happens to the area of a rectangle if you double the length and width.

Concepts
Area, expansion

Teacher preparation
Teachers will need to copy the worksheet and download the Patterns in Area file to the TI-Nspire calculators
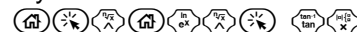
Classroom management tips
Students should have some prior experience working with the TI-Nspire. Students should also have some prior knowledge of area of a rectangle.

TI-Nspire Applications
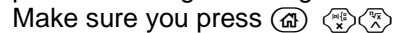*Notes, Graphs and Geometry, Lists and spreadsheets, Calculator*

Step-by-step directions
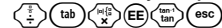
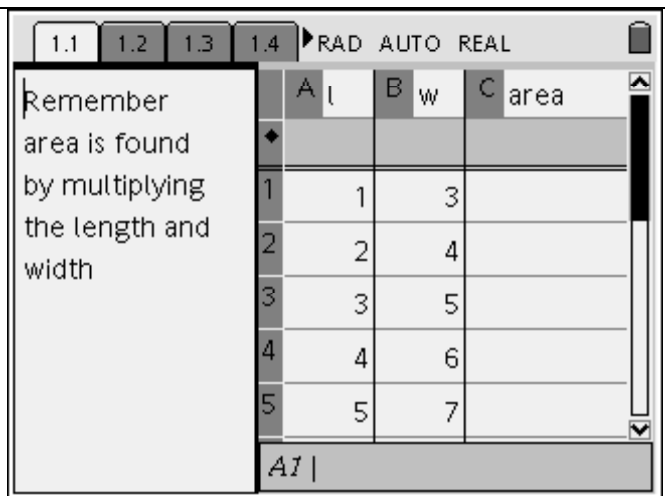|	
1. Open the "Double Me!" file located in my documents on the ⌂⊛⊛⌂⊛⊛⊛ ⊛⊛ screen. 2. Read screen 1.1 then move on to screen 1.2 (you move between screens by ⌂ ⊛⊛ left or ⌂ ⊛⊛ right) and find the area. After working screen 1.2 complete the worksheet to the right practicing working with the area of a rectangle formula. 3. Move to screen 1.3 and drag the two points to change the length and width. Make sure you press ⌂ ⊛⊛ ⊛ tab ⊛ EE ⊛ esc to store the new dimensions.	

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Grade level: secondary
Subject: Geometry
Time required: 60 minutes

Materials: TI-Nspire

4. Move to screen 1.4 to see the area of the triangles you made.

5. Move to screen 2.1 and formulate an answer to the question.
_____
_____
_____
_____
Be ready to share your answer!

6. Work the problem to the right. You will be placing the area of column A and B in column E and the area of column C and D in column F. After you are finished move on to screen 2.2 to check your answers.

	A l	B w	C =2*l	D =2*'w	E a	F na	G
1	1	3	2	6			
2	2	4	4	8			
3	3	5	6	10			
4	4	6	8	12			
5	5	7	10	14			
6	6	8	12	16			

A1 |

7. Move to screen 2.3. Ponder the questions posed.

8. Place the area from column E in column A to the right. Place the area from column F in column B. Move to screen 2.5 and type the equation y=x in f1(x). Stretch the line to find the best fit.
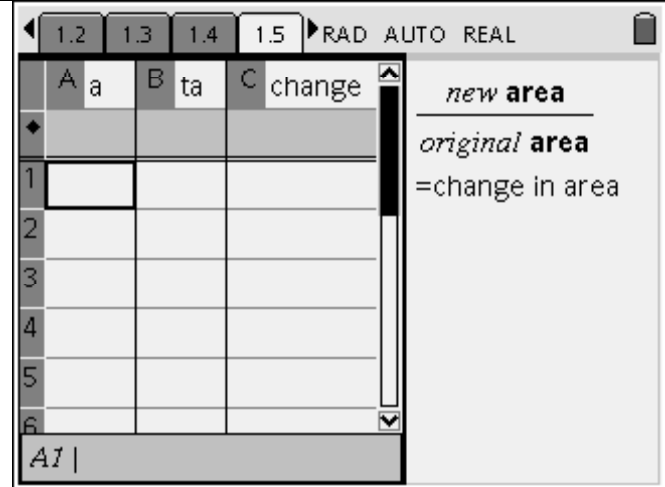
9. Now divide column B by column A. Check screen 2.6 for the answers.

	A a	B na	C change	
1				
2				
3				
4				
5				
6				

$$\frac{new\ \textbf{area}}{original\ \textbf{area}} = \text{Change in area}$$

A1 |

10. Answer the question posed in screen 2.7 _____
_____
_____
_____
_____

11. Work the problem to the right. You will be placing the area of column A and B in column E and the area of column C and D in column F. After you are finished move on to screen 2.8 to check your answers.

	A l	B w	C =3*l	D =3*'w	E a	F ta	G
1	1	3	3	9			
2	2	4	6	12			
3	3	5	9	15			
4	4	6	12	18			
5	5	7	15	21			
6	6	8	18	24			

A1 |

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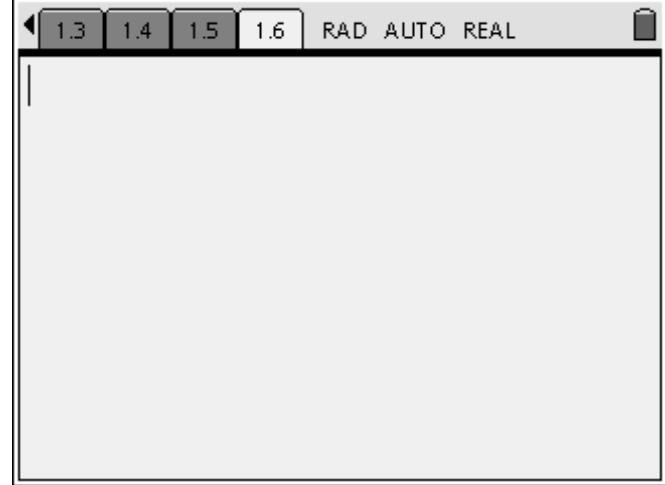|	
12. Move to screen 2.9. Ponder the questions posed. 13. Place the area from column E in column A to the right. Place the area from column F in column B. Move to screen 2.11 and type the equation y=x in f1(x). Stretch the line to find the best fit. 14. Now divide column B by column A. Check screen 2.12 for the answers.	◀ 1.2 1.3 1.4 1.5 ▶ RAD AUTO REAL 🔋 A *a* │ B *ta* │ C change *new* **area** / *original* **area** = change in area
15. Ponder the question on screen 2.13. Work space is provided to the right.	◀ 1.3 1.4 1.5 1.6 RAD AUTO REAL 🔋

Assessment and evaluation
- *Assess the students by the completion of the accompany worksheet*
- *I would discuss the answers to the questions in class.*

Activity extensions
- *Ask the students what would happen to the area if they doubled only the length or only the width. Ask the students what would happen if they tripled the length and width etc.*

Student TI-Nspire Document
Geometry_Pattern in area_Lee.tns