

5th Grade Math Lesson

Everyday Math Lesson 10.9: Area of Circles

Students will.....

- Investigate and apply a formula for finding the area of a circle use ratios to describe the relationship between radius and area, and solve problems involving circumference and area of circles.
- Enrichment/Advanced Problem Solving Group: Explore a model for πr^2 . Use patterns in a table to define the relationship between radius and area.

| | Remediation/Average Group | Enrichment/Advanced Group |
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| <p>Introduction: (15-20 min.)</p> | <p>Whole Class Activity: Solve problems 1-4 on pg. 364 in pairs by working together or independently to determine diameter, radius and circumference. Review these terms for ELL students.</p> <p>Part 1: Verify that students were able to determine the diameter, radius, and circumference of the circle. <i>If students have trouble with counting squares to determine area (#4), see Part 1 Remediation below and higher group that understands #4 can skip to Part 3 below working independently/in pairs to follow directions on pg. 365-366.*</i></p> <p>Part 2: When all students have completed 1-4, then ask students to share their answers to problem 4. List answers on the board and have students find the median, check and have students record median for #5. Discuss the wide variation in answers and why it is difficult to measure the area of a circle by counting squares. The pieces are irregular.</p> | |
| <p>Main Task: (30-40 min.)</p> | <p>*Part 1 Remediation: Use Smartboard (Math Masters pg. 314) to demonstrate method of counting squares if necessary (see pg. 832 TM). Explain that students will count squares AND use a formula to find the area of circles. (Meanwhile, other students are working on Part 3.)</p> <p>When finished, do Part 2 (#4-5) as a whole class (see above).</p> <p>Part 3 - Give directions for pg. 365/366 (give demonstration/remediation for students who need it). Students will measure the radius of circles where the center is not given and to find the approximate area of these circles. Demonstrate one example using a round object and tracing the object on the Smartboard (Math Masters pg. 436). Find the area by counting squares. Record name of object and its approximate area in the 1st and 2nd columns on the table on the Smartboard (TABLE in Math Journal pg. 365). Use a right-angled corner of a piece of paper to find the diameter of the circle. Mark the points where the sides of the angle intersect the circle (see diagram pg. 833 TM). Measure this distance as the diameter. Divide by 2 to find the radius. Record in 3rd column in the table.</p> <p>Then students can work in pairs to trace objects and fill in table (see description to right). Then help with # 4 and 5 if needed. (Enrichment group is working on this page independently/in pairs and</p> | <p>Part 3: Use centimeter grid (Math Masters pg. 436) one per pair, to trace several round objects. Measure radius and area of each using techniques in demonstration. Partners use same objects but measure independently and check each other's work. Follow directions and record results in columns 1-3 on table pg. 365. Have students try to figure out columns 4 and 5 if working with remediation group.</p> <p>Part 4: Do pg. 366. Students read the page and use formula to calculate areas of circles they traced. They compare the areas they found by counting square centimetres with the areas from the formula.</p> <p>Part 5: Work on Math Boxes in Ch. 10 when finished. Self-check answers, show all work and do corrections if necessary. Can work independently or in pairs/small table groups.</p> |

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| | on pg. 366 when finished). | |
| Whole Class Reflection (5-10 min.) | As a whole class, Part 3: students share median values for pg. 365 (#5) ...answers should be close to 3. This is close to π which is no coincidence. This is ratio C to d and A to r ² . This is how we get the formulas for #6!!! Write in formulas. | |
| Assessment/ Reflection (15 min.) | Teacher checks throughout lesson to determine grouping, and also at end of lesson for understanding making sure that student recorded their work accurately and if an answer is wrong, that student went back and figured it out with a partner, independently or by teacher demonstration/remediation. | |
| | Pages to check: pg. 364-365 (all students) and also pg. 366 (Enrichment group) | |
| Using student learning to guide planning and instruction | Based on daily assessment, provide remediation if necessary to students who need it in this lesson and also in the next lesson(s), and use information to create future groups, regroup students and guide planning. | Based on daily assessment, provide feedback on explanations, use notes to create future groups and further enrichment in next lesson(s) to develop and guide planning. |