### TOPIC: Convert Decimal Degrees into Degrees, Minutes, Seconds

**Teacher: Mrs. Jose**

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<th>Instructional Objective</th>
<th>At the end of the session, the students will be able to use conversion of units to write Decimal Degrees into Degrees, Minutes, Seconds form, and vice versa.</th>
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<td><strong>Materials</strong></td>
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<td><strong>Strategies</strong></td>
<td>Cooperative Learning – Pair-Share</td>
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<td><strong>Prerequisite</strong></td>
<td>Point plotting on a coordinate grid</td>
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<td><strong>The DRILL/ Warm-Up 5%</strong></td>
<td>There are _______ minutes in 1 hour. There are _______ minutes in 45 seconds. There are _______ hours in 20 minutes.</td>
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<td><strong>The LAUNCH 15%</strong></td>
<td>How will you convert decimal degrees into degrees/minutes/seconds form, and vice versa?</td>
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<td><strong>Mini-Lesson/ Engagement/ Exploration</strong></td>
<td>In a complete circle, there are 360°. Each degree is made up of 60 minutes. Each minute is made up of 60 seconds.</td>
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|                         | **Example 1:** Convert 135.121° N into degrees/minutes/seconds form:  
|                         |   1. Keep the whole units of degrees the same.  
|                         |   2. Multiply the decimal 0.121 by 60 (i.e. 0.121 x 60 = 7.26)  
|                         |   3. The whole number becomes the minutes (7')  
|                         |   4. Take the remaining decimal and multiply by 60 (i.e. 0.26 x 60 = 15.6)  
|                         |   5. The result is the seconds (15.6”). Seconds may be whole or remain as decimal #s)  
|                         |   6. Take the 3 sets of numbers and put them together (i.e. 135° 7’ 15.6” N)  
|                         | **Guided Practice:** Convert the following into degrees/minutes/seconds form:  
|                         |   a. 77.745° W  
|                         |   b. 38.675° N  
| **The WORK SESSION 60% (individual, partner, small group)** | Students will work in pairs to convert decimal degrees into degrees/minutes/seconds form, and vice versa.   
|                         | Convert the following into degrees/minutes/seconds form:   
|                         |   a. 80.2525° W  
|                         |   b. 45.1375° S  
|                         |   c. 31.7535° E  
|                         |   d. 78.2863° N  
|                         |   e. 169.1357° W  
|                         |   f. 72.8642° N  
|                         | **Example 2:** Convert 75° 15’ 45” W into decimal degree form:   
|                         |   1. Keep the degree unit the same.  
|                         |   2. Divide the seconds number by 60 (i.e. 45 ÷ 60 = 0.75)  
|                         |   3. Take the minutes number and add the decimal (i.e. 15.75)  
|                         |   4. Divide the minute decimal by 60 (15.75 ÷ 60 = 0.2625)  
|                         |   5. The result is the decimal degree (i.e. 0.2625°)  
|                         |   6. Take the whole unit degree and add the decimal degree (i.e. 75.2625°)  
|                         | **Guided Practice:** Convert the following into decimal degrees form:   
|                         |   a. 120° 55’ 25” E  
|                         |   b. 9° 36’ 24” N   |
| **The SUMMARY 20%**     | How did you and your partner work on converting decimal degrees into degrees/minutes/seconds form, and vice versa? How did you check each other’s work? |
| **Accommodation**       | A strong student will be paired with a special need student, or 2 regular students paired together.                             |
| **Assessment**          | Written work of students on the activity, to be discussed as a class, for immediate feedback.                                 |