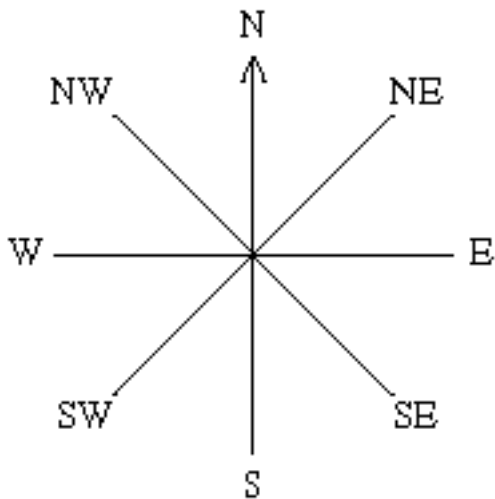
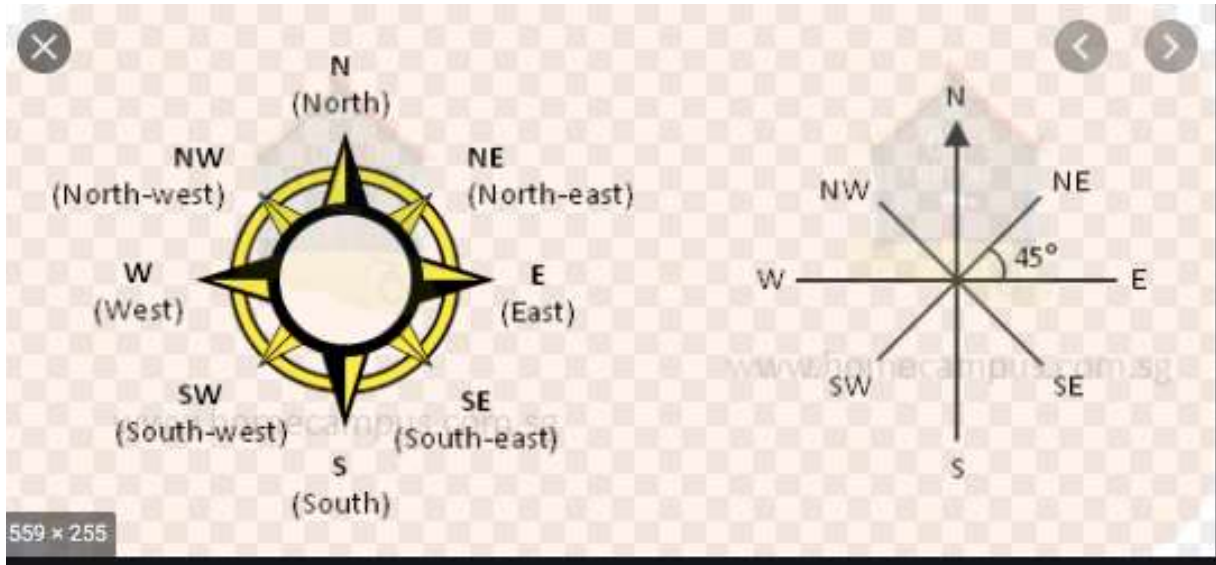




**Model**









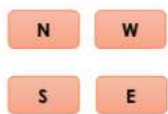





Turning from N to S is  $180^\circ$   
clockwise or anticlockwise

Turning from NE to SE  
is  $90^\circ$  clockwise (or  $270^\circ$  anti-  
clockwise)

Turning clockwise from NE to E  
is  $45^\circ$  (or  $315^\circ$  anticlockwise)

**Mild**

<p>1a. These mice are facing west. They need to turn to face north to find the cheese.</p>  <p>Sally: We need to turn through a right angle.</p>  <p>Fahad: We need to make a 270° turn clockwise.</p>  <p>Who do you agree with? Explain.</p> <p>☆</p>	<p>1b. These pirates are facing north. Their captain tells them they need to turn to face south.</p>  <p>Jake: We need to turn 90°.</p>  <p>Tara: We need to make a <math>\frac{1}{2}</math> turn.</p>  <p>Who do you agree with? Explain.</p> <p>☆</p>
<p>2a. Which of the following cards could be used to complete the statement? Give all of the possible answers.</p>   <p>Turning from E to ___ &gt; a 180° turn</p> <p>☆</p>	<p>2b. Which of the following cards could be used to complete the statement? Give all of the possible answers.</p>   <p>Turning from ___ to N &lt; a 180° turn</p> <p>☆</p>
<p>3a. Starting at 12:15, the minute hand makes more than 4 but fewer than 7 quarter turns clockwise.</p> <p>What times could the clock show after the turns?</p>  <p>☆</p>	<p>3b. Starting at 18:30, the minute hand makes more than 3 but fewer than 6 quarter turns clockwise.</p> <p>What times could the clock show after the turns?</p>  <p>☆</p>

**1a. Sally is correct because a right angle (90°) turn clockwise will reach North. Fahad is also correct as a 270° turn anti-clockwise will also reach North.**

**2a. N and E clockwise or S and E if anti-clockwise.**



**3a. 5 quarter turns clockwise – 13:30 or 6 quarter turns clockwise – 13:45**

**1b. Tara is correct because a 2 turn in either direction will have them facing South.**

**2b. W clockwise or E anti-clockwise.**

**3b. 4 quarter turns clockwise – 19:30 or 5 quarter turns clockwise – 19:45**

**Spicy/ Red Hot**

<p>7a. These children are facing SW and their teacher has told them to turn clockwise and then a greater turn anti-clockwise to face W.</p> <p>Daniel: We need to make a <math>\frac{3}{8}</math> turn and then a right angle.</p> <p>Hafash: We need to make a <math>45^\circ</math> turn and then a whole turn.</p> <p>Who do you agree with? Explain.</p>	<p>7b. These children are facing NE and their teacher has told them to turn clockwise and then a greater turn anti-clockwise to face W.</p> <p>Kyle: We need to turn <math>135^\circ</math> and then an acute angle anti-clockwise.</p> <p>Hattie: We need to make a <math>\frac{3}{8}</math> turn and then a reflex angle.</p> <p>Who do you agree with? Explain.</p>
<p>8a. Which of the following cards could be used to complete the statement? Give all of the possible answers.</p> <p>N NE W NW S SE E SW</p> <p>A <math>405^\circ</math> turn &gt; turning from _____ to NE &gt; a <math>\frac{3}{8}</math> turn anti-clockwise</p>	<p>8b. Which of the following cards could be used to complete the statement? Give all of the possible answers.</p> <p>N NE E NW S SW SE W</p> <p>A <math>135^\circ</math> turn &lt; turning from _____ to SW &gt; a <math>\frac{1}{8}</math> turn clockwise</p>
<p>9a. Starting at 18:47, the minute hand makes more than 6 but fewer than 9 twelfth turns.</p> <p>What times could the clock show after the turns?</p> 	<p>9b. Starting at 05:11, the minute hand makes more than 5 but fewer than 8 twelfth turns.</p> <p>What times could the clock show after the turns?</p> 

**7a. Hafash is correct because after the  $45^\circ$  turn she will be facing W. Then a whole turn is  $360^\circ$  which is greater than  $45^\circ$  and she will be facing W again.**

**8a. NE, N, NW, W and SW.**

**9a. 7 twelfth turns clockwise – 19:22;**

**8 twelfth turns clockwise – 19:27; 7 twelfth turns anti-clockwise – 18:12; 8 twelfth turns anti-clockwise – 18:07**

**7b. Hattie is correct because if she turns clockwise  $3$ , this will be a  $135^\circ$  turn and**

**she will be facing S. Then if she turns a reflex angle of  $270^\circ$  anti-clockwise she will be facing W.**

**8b. N, NE, NW, SW, W**

**9b. 6 twelfth turns clockwise – 05:41, 7 twelfth turns clockwise – 05:46; 6**

**twelfth turns anti-clockwise – 04:41; 7 twelfth turns anti-clockwise – 04:36**