Sudo\_Code\_for\_Travel\_Time\_Calculator\_

1. Start
2. Create Direction Placeholders: **TravelUnits TravelDirection PersonCount WindForce WindDirection**
3. Create Calculated Placeholders: **UnitTime PersonTime WindTime TotalTime TotalDistance**
4. Set **TravelUnits** = (km/2)
5. Set **TravelDirection**
6. Set **PersonCount**
7. Wind Force Description
   1. No Wind: Set **WindForce** = 0
   2. Weak: Set **WindForce** = 1
   3. Moderate: Set **WindForce** = 2
   4. Strong: Set WindForce = 3
8. Set **WindDirection**
9. Accumulate **TotalDistance** (Add **TravelUnits** \* 2)
10. Set **UnitTime** = **TravelUnits** \* 10 min
11. Set **PersonTime** = **UnitTime** \* (**PersonCount** \* 10%)
12. **WindForce** > 0?
    1. Yes: Wind Impact
       1. Against the Wind: Set **WindTime** = **UnitTime** \* (**WindForce** \* 20%)
          1. Travel Direction = North and Wind Direction = Southerly
          2. Travel Direction = East and Wind Direction = Westerly
          3. Travel Direction = South and Wind Direction = Northerly
          4. Travel Direction = West and Wind Direction = Easterly
       2. With the Wind: Set **WindTime** = **UnitTime** \* (**WindForce** \* 30%)
          1. Travel Direction = North and Wind Direction = Northerly
          2. Travel Direction = East and Wind Direction = Easterly
          3. Travel Direction = South and Wind Direction = Southerly
          4. Travel Direction = West and Wind Direction = Westerly
       3. Perpendicular to the Wind: Set **WindTime** = **UnitTime** \* (**WindForce** \* 5%)
          1. Travel Direction = North or South and Wind Direction = East or West
          2. Travel Direction = East or West and Wind Direction = North or South
    2. No: Set **WindTime** = 0
13. Accumulate **TotalTime**: **TotalTime** = **UnitTime** + **PersonTime** + **WindTime**
14. More Directions
    1. Yes: Go to step 4
    2. No: Go to step 15
15. Display **TotalTime**
16. Display **TotalDistance**
17. End

Leaving from home, you travel east 12 km alone in the car on a nice sunny day with no wind.

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| **Directional**  **Step #** | **Units to**  **Travel** | **Travel**  **Direction** | **Number of**  **People** | **Wind**  **Force** | **Wind**  **Direction** | **Unit Time**  **(min)** | **People Time**  **(min)** | **Wind Time**  **(min)** | **Total Time**  **(min)** | **Accum.**  **Time (min)** | **Accum.**  **Distance (km)** |
| 1 | 6 | East | 1 | 0 | - | 60.0 | 6.0 | 0.0 | 66.0 | 66.0 | 12 |

Leaving from work on a snowy day, you travel south 12 km with two (2) passengers and a weak northerly wind.

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| **Directional**  **Step #** | **Units to**  **Travel** | **Travel**  **Direction** | **Number of**  **People** | **Wind**  **Force** | **Wind**  **Direction** | **Unit Time**  **(min)** | **People Time**  **(min)** | **Wind Time**  **(min)** | **Total Time**  **(min)** | **Accum.**  **Time (min)** | **Accum.**  **Distance (km)** |
| 1 | 6 | South | 3 | 1 | Northerly | 60.0 | 18.0 | -18.0 | 60.0 | 60.0 | 12 |

Leaving from the dentist’s office, you travel slowly west 4 km with two (2) passengers and a strong westerly wind.

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| **Directional**  **Step #** | **Units to**  **Travel** | **Travel**  **Direction** | **Number of**  **People** | **Wind**  **Force** | **Wind**  **Direction** | **Unit Time**  **(min)** | **People Time**  **(min)** | **Wind Time**  **(min)** | **Total Time**  **(min)** | **Accum.**  **Time (min)** | **Accum.**  **Distance (km)** |
| 1 | 2 | West | 3 | 3 | Westerly | 20.0 | 6.0 | 12.0 | 38.0 | 38.0 | 4 |

Leaving from the park on a rainy day, you travel north 4 km with one (1) passenger and a moderate easterly wind.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Directional**  **Step #** | **Units to**  **Travel** | **Travel**  **Direction** | **Number of**  **People** | **Wind**  **Force** | **Wind**  **Direction** | **Unit Time**  **(min)** | **People Time**  **(min)** | **Wind Time**  **(min)** | **Total Time**  **(min)** | **Accum.**  **Time (min)** | **Accum.**  **Distance (km)** |
| 1 | 2 | North | 2 | 2 | Easterly | 20.0 | 4.0 | 0.2 | 24.2 | 24.2 | 4 |

**Final Test Scenario**

1. Leaving from home, you travel east 12 km alone in the car on a nice sunny day with no wind.  
2. You come to a stop and pickup two co-workers (Rose and John) with whom you car-pool as you head to work. A weak northerly wind is blowing while you travel 12 km south.  
3. You arrive at work and spend the day developing a “travel time calculator” application. Your workday ends and it’s time to go home (Rose and John are hitching a ride again) but you have some stops to make. The strong westerly wind is fierce as you travel west for 4 km.   
4. You come to a stop at John’s dentist office and John exits the car. A moderate easterly wind is gusting as you drive north 4 km.  
5. When you come to a stop, Rose gets out as she is meeting some friends for dinner. The wind strengthens and is strong still blowing easterly as you travel west for 6 km. 6. When you arrive at your children’s school, Ellie and Jerry get into the car. Snow is starting with a moderate southerly wind as you travel 8 km north returning home.

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| **Directional**  **Step #** | **Units to**  **Travel** | **Travel**  **Direction** | **Number of**  **People** | **Wind**  **Force** | **Wind**  **Direction** | **Unit Time**  **(min)** | **People Time**  **(min)** | **Wind Time**  **(min)** | **Total Time**  **(min)** | **Accum.**  **Time (min)** | **Accum.**  **Distance (km)** |
| 1 | 6 | East | 1 | 0 | - | 60.0 | 6.0 | 0.0 | 66.0 | 66.0 | 12 |
| 2 | 6 | South | 3 | 1 | Northerly | 60.0 | 18.0 | -18.0 | 60.0 | 126.0 | 24 |
| 3 | 2 | West | 3 | 3 | Westerly | 20.0 | 6.0 | 12.0 | 38.0 | 164.0 | 28 |
| 4 | 2 | North | 2 | 2 | Easterly | 20.0 | 4.0 | 2.0 | 26.0 | 190.0 | 32 |
| 5 | 3 | West | 1 | 3 | Easterly | 30.0 | 3.0 | -27.0 | 6.0 | 196.0 | 38 |
| 6 | 4 | North | 4 | 2 | Southerly | 40.0 | 16.0 | -24.0 | 32.0 | 228.0 | 46 |