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| AQR, Unit 7:  *Networks and Graphs* |
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Our Learning Goals:



# Sample Problem:

Construct two snowplow routes through each of the following cities, and indicate the time it will take to travel each route. The time it takes to traverse each road (in hours) is indicated in the graph.

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| Additional Support:  * Check the teacher web page and Canvas page for notes, activities, and assignments and possible examples. * Search the topic on the web. We recommend using Khan Academy. * Attend tutorials. |

We will…

* use graphs and the definitions of circuits and paths to study Euler circuits, Hamiltonian circuits and complete entire modeling cycles.
* represent situations with graphs and then look at ways of determining the spanning trees that solve questions arising from the situation.
* devise, test, and use algorithms for finding spanning trees and minimal spanning trees.
* create coloring maps and graphs associated with these maps.
* analyze and construct activity graphs then make conjectures about minimal completion times corresponding to the graphs they have made.

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| Why do we study this?   * We create models that represent real-world contexts involving networks and graphs to investigate real-world scheduling problems. * Although networks and graphs have geometrical connections (in that they are drawn in two dimensions with points, lines, and curves), the mathematical reasoning required to create, understand, and use them will be needed for most future jobs. |
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How we will show what we have learned…

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| Formative Assessments | Summative Assessments |
| Ongoing formative assessments during lesson and homework activities will help in monitoring learning and providing feedback for students. | Summative assessments to measure learning at the end of concepts will include the following:   * Unit 7: District-wide Exam * Math-in-My-Future Project * Build a Robot Project/Presentation |