

# Example Context Elaboration: Minimum Spanning Tree

Focus: Networks

## Achievement objective M7-5

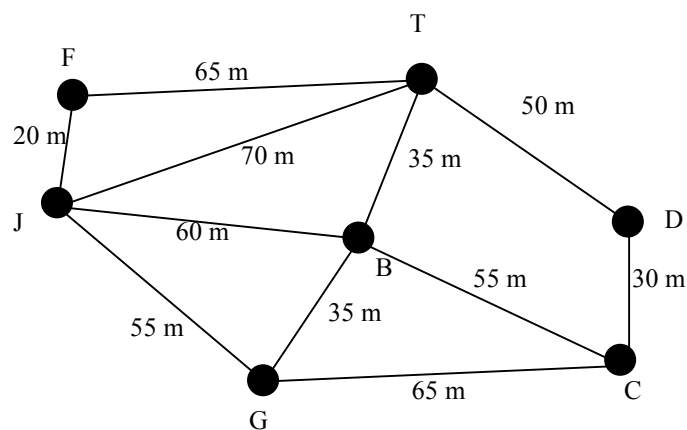
*In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to:*

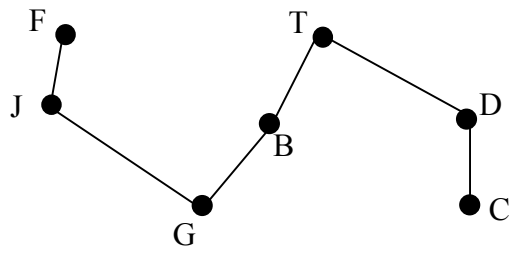
Choose appropriate networks to find optimal solutions

### Fibre optic cables

A school has decided to install underground fibre optic cables linking the administration building with all other buildings so that every room may have a pod of computers. The network below represents the plan submitted to the accountant by a technician. Each node represents a building, with J being the administration building.

The accountant for the project realises that a number of the cables are in fact unnecessary and just add extra costs. By removing the unnecessary cables, redraw the network to minimise the length of cable used, therefore reducing costs (i.e. create a minimum spanning tree). State the minimum length of cable needed. Note: we are only interested in the cabling between buildings, the cables within the buildings will come from a different budget.





*Minimum length = 225 m*