

The logistics of soil and rock removal



Truck 2 Semi Tipper



Haulage:

Capacity: **30 m³**
Maximum journeys per day: **4**

Daily costs:

Fuel: **\$600**
Driver wages: **\$490**
Maintenance: **\$78**

Key features

- Can carry large loads and make frequent trips.
- Larger capacity = longer to load and unload.
- This truck is not affected by road weight limits; however, its length and size restrict access to some sites such as those with narrow streets.
- Specialised license required = fewer qualified drivers available and higher wages.
- Heavier truck – takes longer to accelerate up to speed. It is restricted by speed limits applicable to heavier loads, making travel times longer.
- Fewer trucks = less emissions, less pollution and less road congestion.

Should we use Truck 2?

1. How much excavated material can this truck remove in one day?

Truck Capacity x Maximum number of trips in one day
= Amount of soil and rock for one day

_____ x _____ = _____ m³

2. The project requires 3,000 m³ of excavated material to be removed per day to meet construction deadlines.

This truck can remove _____ m³ per day.

How many trucks will you need?

Amount of excavated material to be removed per day ÷
Amount of soil and rock removed by one truck in one day =
Number of trucks needed.

_____ m³ ÷ _____ m³ = _____ trucks

3. How much will it cost to run one of these trucks per day?

Use the information above and the truck facts to answer this question:

Driver wages: \$ _____

Truck maintenance cost: \$ _____

Fuel cost: \$ _____

Total cost for one truck per day: \$ _____

Total cost to remove the 3,000 m³ of excavated material per day:

Cost of one truck x Number of trucks needed each day = Total cost per day

\$ _____ x _____ = \$ _____