PULLEYS AND LIFTING

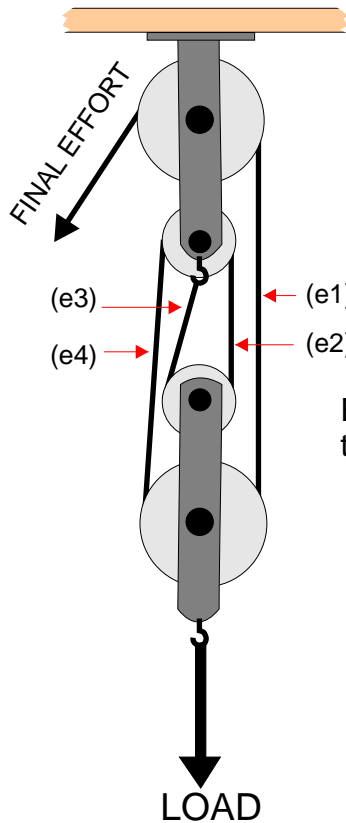V.Ryan © 2000 - 2010

W.A.T.T.

World Association of Technology Teachers

This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

PULLEYS AND LIFTING - QUESTIONS

FINAL EFFORT

(e3)

(e1)

(e4)

(e2)

LOAD

The pulley opposite has four pulleys which support the load by dividing it into four lengths. Each part of the rope equally supports the load. What is the mechanical advantage of the system?

MECHANICAL ADVANTAGE=

Each of the efforts (e1, e2, e3, e4) must move in order to lift the load. What is the velocity ratio of the pulley system?

VELOCITY RATIO=

FINAL EFFORT

4m

(e3)

(e1)

(e4)

(e2)
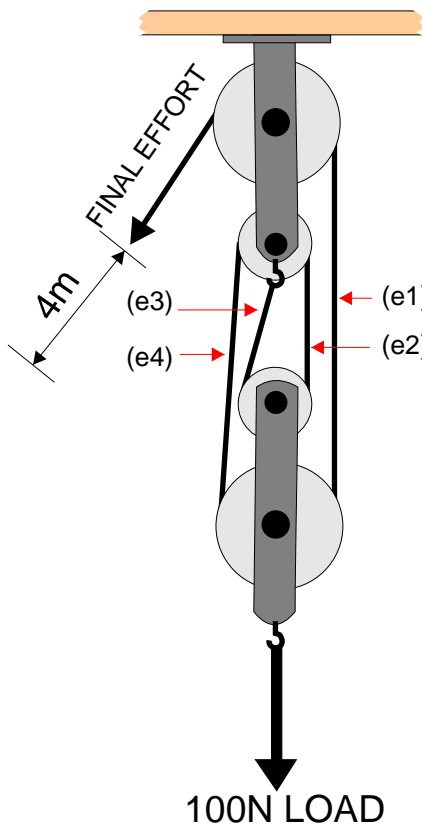
100N LOAD

The example opposite shows a pulley system used to lift a 100N load. Work out the mechanical advantage and velocity ratio.

MECHANICAL ADVANTAGE=

VELOCITY RATIO=

What effort is required to lift the 100N load?

EFFORT =

How far does the load move in compared to the 4m movement of the final effort?

DISTANCED MOVED =
BY LOAD