



Self-Study Worksheet HI01		What is Hydraulics
What Hydraulics is Used For		
Email:	Course:	Provider:

Learning Objectives/Expected Outcomes: (1-2 hrs)

1. To recognise examples of where fluid power, hydraulic equipment is used.
2. To appreciate that loads are moved by either hydraulic cylinders or rotating motors.
3. To appreciate that many different market sectors and machines use hydraulic.
4. To understand why fluid power is used in these applications.

Previous Knowledge Required:

No previous knowledge is required. Students already working with hydraulic equipment including hydraulic pumps, actuators and control valves, etc. may not require this worksheet.

Terminology:

Fluid power, hydraulics, mobile equipment, industrial systems, hydraulic actuators.

Record of Achievement:



Click the mail icon to post your results to any free or standard LRS/LMS systems. See www.e4training.com/xapi/ for more details. Complete and keep this training record sheet along with any additional written work or sample calculations.

Hydraulics is Fun!



Estimated time: 5 minutes, skill level 1

Watch a hydraulic press crushing things at www.e4training.com/hyd_newbie/compare2.php
Hydraulic fluid power has the highest power to weight ratio and can produce some of the highest forces in industrial and mobile machines.

Complete



Estimated time: 5 minutes, skill level 1

Watch examples of hydraulic machines that are used around us everyday www.e4training.com/hyd_newbie/index.php#box6

Complete



Coursework investigations



Estimated time: 15 minutes, skill level 1

Date complete:

Complete

Look at the examples of where hydraulic equipment is used at www.e4training.com/hyd01/ & www.e4training.com/hyd02/
Write down the different uses of fluid power you see around you or can find on the internet.

Highlight linear and rotary movement, high power, range of applications, and flexible positioning of actuators.



Estimated time: 20 minutes, skill level 1

Submit notes:

Complete

Drive a skid steer excavator. Move with the left and right track drive motors. Extend and retract the boom cylinder. Rotate the cab slew motor.

Go to www.e4training.com/Hydraulic_projects/skidsteer3.php?drive
Identify and write down other linear and rotary movement actuators seen on other hydraulic systems.



Estimated time: 10 minutes, skill level 1

Submit notes:

Complete

Identify the range of different industries that uses fluid power e.g.

- Mobile excavators, dozers, tractors.
- Industrial power units, steel mills, plastic injection molding machines.
- Flight simulators, aircraft landing gear.

Write down other examples you can find.



Estimated time: 10 minutes, skill level 1

Submit notes:

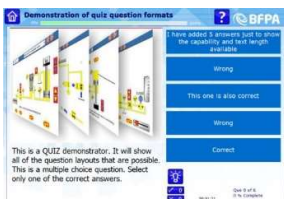
Complete

Consider why hydraulic fluid power is used in these systems e.g.

- Very heavy loads or high power.
- High power to weight ratio (big loads but small installation size).
- Flexible positioning with power units in one location and drive actuators in another.

Write down examples of the above

Interactive quiz to check and reinforce learning



Complete the 'hydraulic valve questions' at

[www.e4training.com/hydraulic_test1.php?Quiz - Hydraulics Free](http://www.e4training.com/hydraulic_test1.php?Quiz-Hydraulics-Free)

Post result when complete.

Quiz name, date, score

Tick when posted



Key questions / Plenary

Can you describe typical applications that use hydraulics?
Why might mobile and industrial hydraulic components be different?
Is hydraulic equipment widely used in the farming and manufacturing industry?

And Finally:

Complete this worksheet and keep for your records. Submit any written coursework etc. to your training course provider.

Follow-on Course Worksheets:

Potential follow-on worksheets include:
HI03 – Compare hydraulic, pneumatic, and electrical systems

For specialist course worksheets visit www.e4training.com/hydraulic_courses/worksheets1.php

Notes