

MachineForge — Concept Poster

Print this and pin it up — an at-a-glance map of the MachineForge cast and the ideas each one carries. Come back to it whenever you want to remember who teaches what.

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Meet the cast — and what each one teaches

Character	What they carry
Pry	Lever — push longer to lift heavier; the trade between force and distance
Hoist	Pulley — pull down here and watch it go up there; redirecting force
Ramp	Inclined plane — climb the long slow way; less force, same work
Spoke	Wheel-and-axle — one turn of the hub, many turns of the rim
Auger	Screw — round and round becomes step and step; spiral inclined plane
Cleave	Wedge — push forward and split it apart; force concentrated to a sharp edge
Pinion	A gear train: meshing teeth trade turning-speed for turning-force and pass the motion along, faster or stronger as you choose.
Flex	A spring: bend it to store your push, let go and it gives every bit back — energy held, then returned.
Lobe	A cam: a spinning shape with a bump that turns steady spinning into a repeating push, like a music box keeping a beat.
Ratchet	A ratchet: lets motion go forward freely but locks when it tries to slip back, holding every bit of progress, click by click.

Key ideas at a glance

The big concepts this cast helps you master:

- Simple Machines Basics
- Forces and Motion Fundamentals

- Gears, Pulleys, and Mechanical Advantage
 - Levers, Inclined Planes, and Wedges
 - Energy Transfer and Conversion
 - Structural Engineering and Materials
 - Vehicle Design and Propulsion Systems
 - Master Engineer — Capstone
 - Simple Machines & Engineering
 - forces
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