TECHNOLOGY REVIEW SHEET

7 Technology Resources

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PEOPLE – People satisfying needs and wants drive technology. We need people to design and create technology.

INFORMATION – Information is required to solve problems. Information is learned, adapted and reused.

MATERIALS – Materials can come in different categories. Natural materials that are raw can be renewable or nonrenewable. There are also synthetic materials created by people. Materials are and can be processed into more useful forms.

TOOLS & MACHINES – Tools and machines can extend the capabilities of people to do work by increasing force, speed and direction.

ENERGY – Energy, like materials comes in different forms. They can be renewable and nonrenewable. Renewable sources are people and animal power as well as energy created from solar power, generated by wind, geothermal and gravitational energy from the earth, and water energy. Nonrenewable sources are fossil fuels and nuclear energy.

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Material Categories

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Six Simple Machines

Lever. There are three basic types of levers, depending on where the effort is applied, on the position of the load, and on the position of the fulcrum.

Wheel and axle. The wheel and axle is essentially a modified lever, but it can move a load farther than a lever can. The center of the axle serves as a fulcrum. The wheel-and-axle machine has important applications when it is used to transport heavy goods by rolling rather than by sliding.

Pulley. A pulley is a wheel over which a rope or belt is passed. It is a form of the wheel and axle.

Inclined plane. The inclined plane is such a simple device that it scarcely looks like a machine at all. The mechanical advantage increases as the slope of the incline decreases.

Wedge. The wedge is an adaptation of the inclined plane. It can be used to raise a heavy load over a short distance or to split a log. The effectiveness of the wedge depends on the angle of the thin end. The smaller the angle, the less the force required to raise a given load.

Screw. The screw is actually an inclined plane wrapped in a spiral around a shaft. A *jackscrew,* such as those used to raise homes and other structures, combines the usefulness of the screw and the lever. The lever is used to turn the screw.

Open and Closed Loop Systems

Open loop system has only Input, process and output
Closed loop systems have input, process, output, and the addition of monitor, feedback, which allows for compare/adjust achieving hopefully more desirable results.

Air conditioner vs. a fan
Thermostats
Antilock brakes vs. none.
Rain sensing windshield wiper
Crash Avoidance System
Daytime running lights

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History of Technology & Timeline

THE STONE AGE

Stone Age, the time early in the development of human cultures, before the use of metals, when tools and weapons were made of stone. The hunting and gathering of food was the norm. At first, single tools, such as chipped pebbles or flaked stone implements, were used for all purposes. Over time, a variety of tools were made for specific purposes.

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archaeological sequence known as the three-age system (Stone Age, Bronze Age, & Iron Age). Early steels were discovered by adding small amounts of carbon to iron as it was hammered over a charcoal fire. Mining became well developed and included the use of pumps to keep mines from flooding. Among the greatest Roman works were the large aqueducts that carried water for hundreds of miles, roads that spanned the empire and public sewer systems.

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Negative and Positive Impacts

Environmental issues and socioeconomic issues. Positives and negatives of factories, airports, drugs/medical, inventions.

Ergonomics

What is it? Why is it important? The applied science of equipment design, as for the workplace, intended to maximize productivity by reducing operator fatigue and discomfort.

Families/Classifications of Technology

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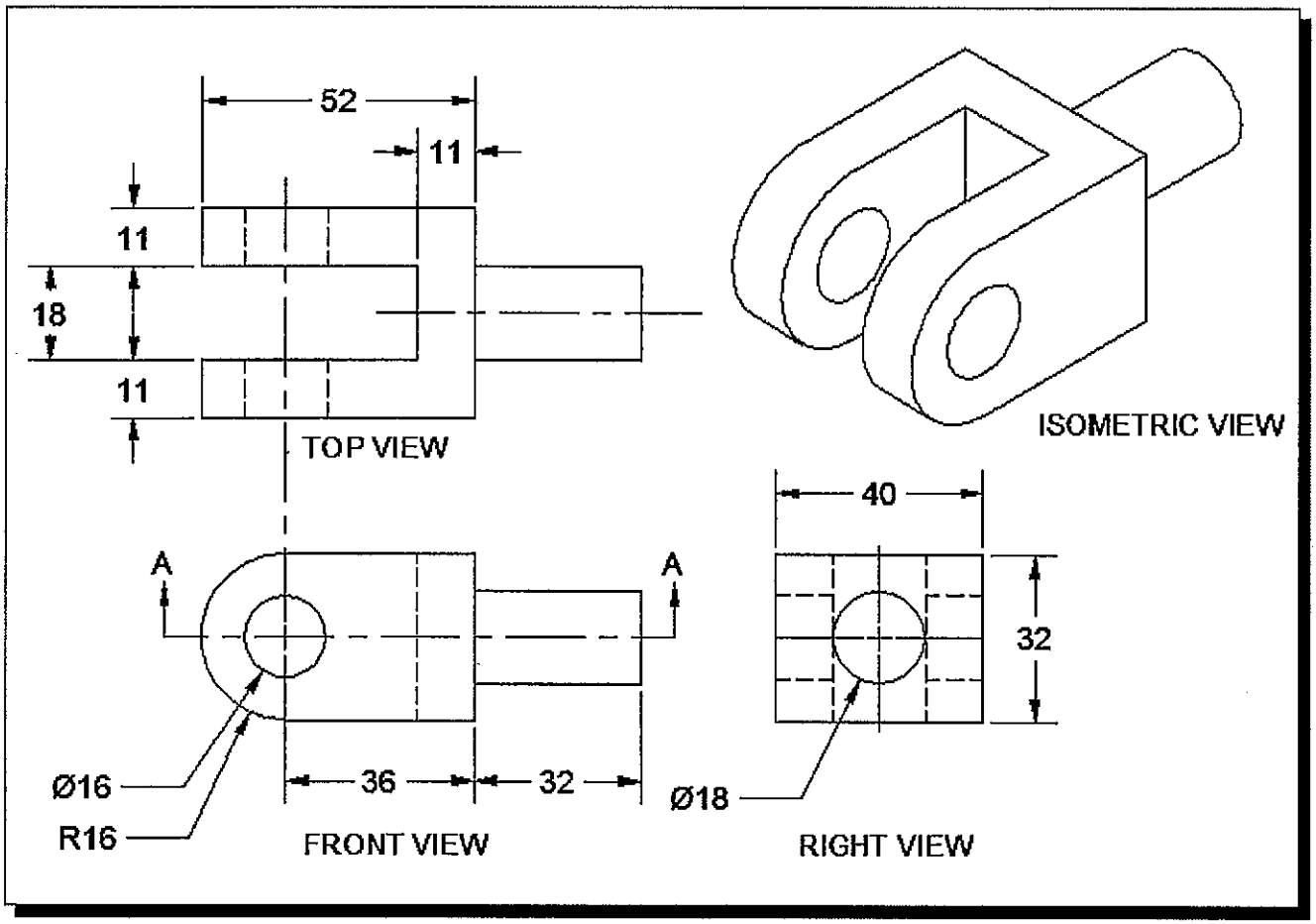

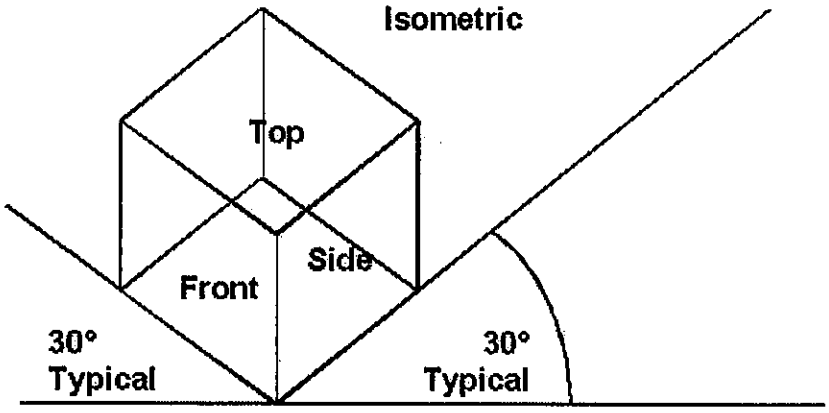

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Width
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Parallel
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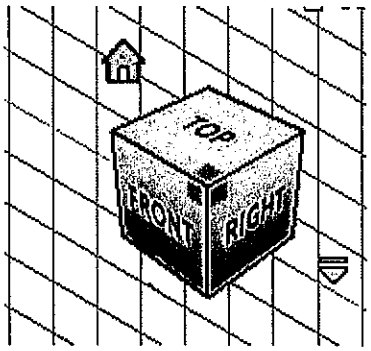

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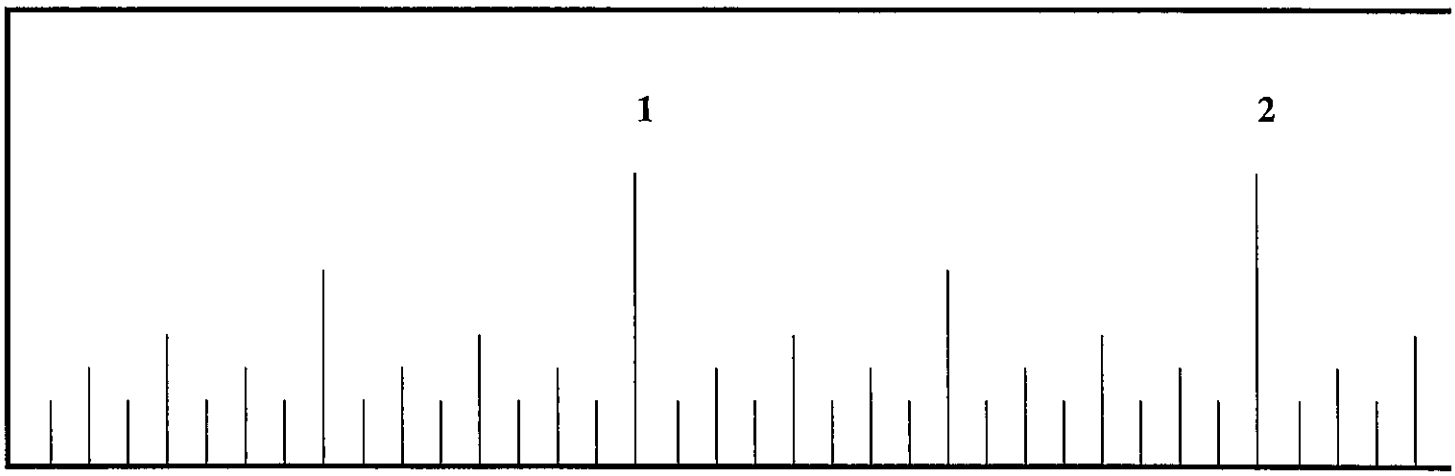

AERODYNAMICS

Aerodynamics is the way air moves around things. The rules of aerodynamics explain how an airplane is able to fly. Anything that moves through air reacts to aerodynamics.

The DESIGN PROCESS

Define the Problem, Brainstorm, Explore Possibilities, Model (Prototype), Create
What is form in design?
What is the difference between invention and innovation?

SHOP SAFETY

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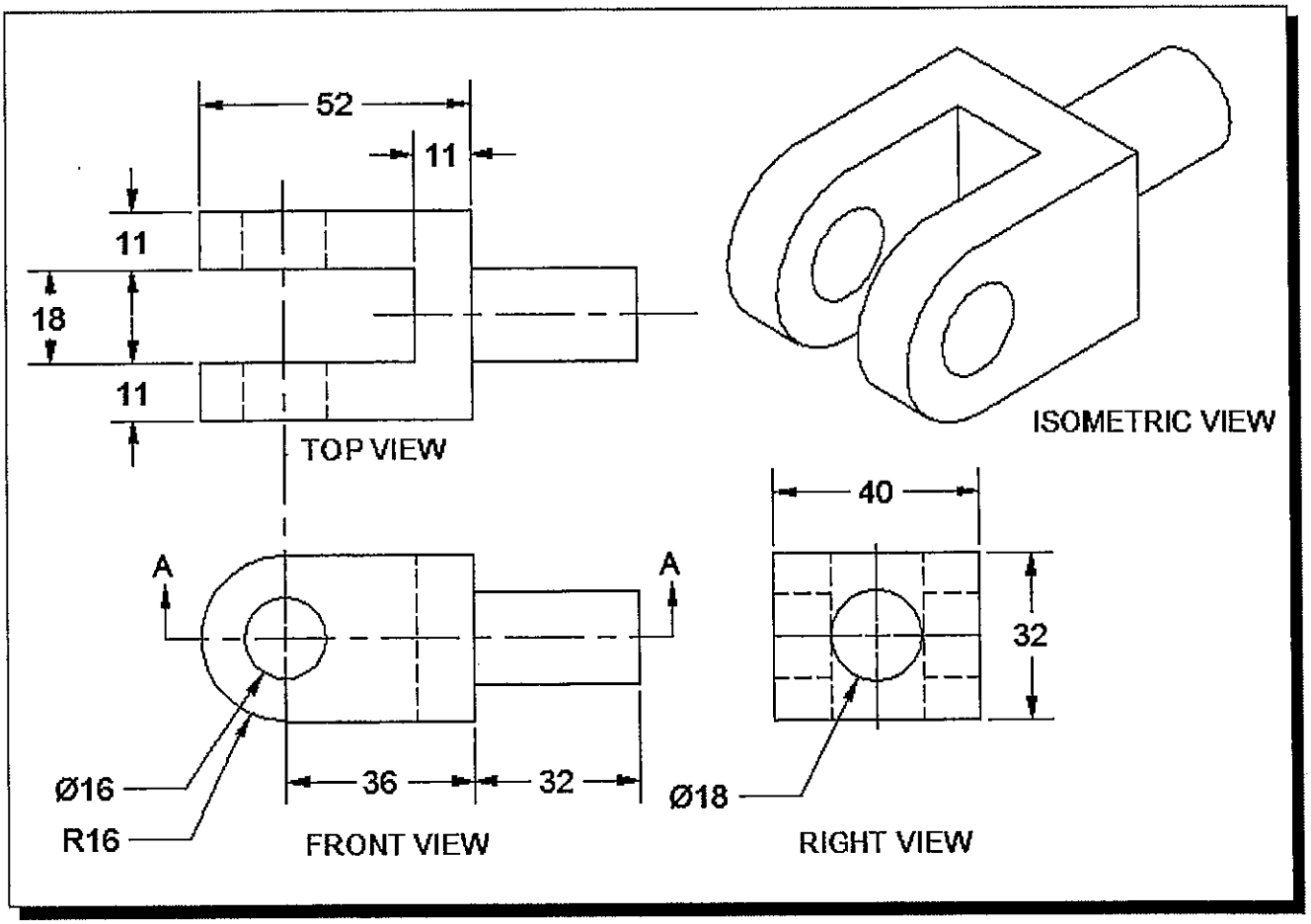

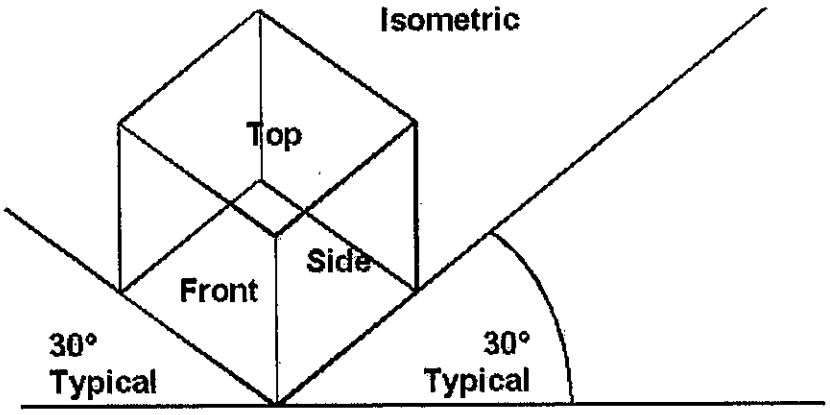

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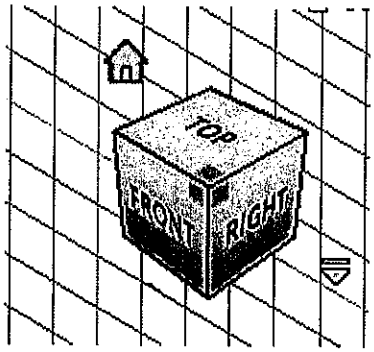

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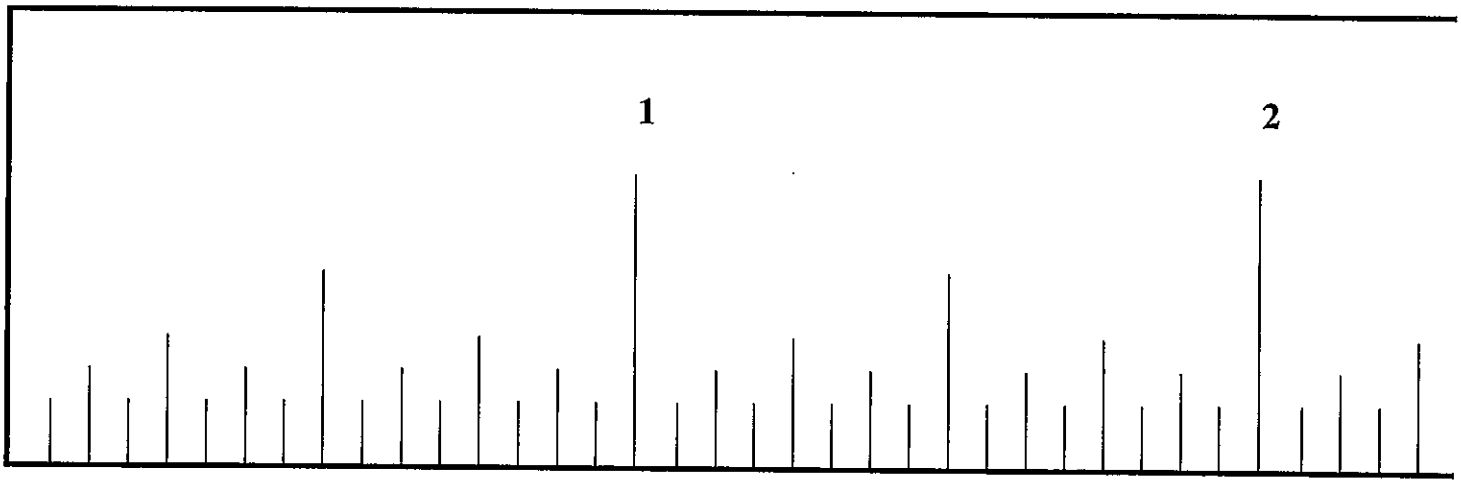

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REVIEW QUESTIONS

What is the difference between science and technology?

What is input, process and output?

What are the 3 families/categories of technology?

What is brainstorming?

What is a prototype? Brainstorming ideas to prototyping to mass production

What is mass production? And contrast it against craft production.

What are renewable resources? Nonrenewable?

What are negative and positive impacts of technology? Examples?

BRING a number 2 pencil and lots and lots of **COMMON SENSE**!