

JOINING MATERIALS

Most functional objects are made of two or more pieces that are joined. Some functional objects do, however, consist of one piece. Cooking pans and molded wrenches are two examples. Also, some nonfunctional sculpture is made of joined pieces. Methods of joining pieces to make an object include gluing, screwing, nailing, bolting, riveting and welding.

Engineers consider many factors when they are making design decisions about how an object will be constructed and they particularly consider how pieces will be joined. They choose materials and methods of joining that will provide the greatest safety, economy and durability.

APPLYING WHAT YOU KNOW

1. Look at the diagrams. For each, write "joined" or "not joined" to indicate whether the object is one piece or is made of joined parts. Then write one kind of load and the major kinds of stress each object has to withstand. Draw an arrow to show where each stress takes place. Label your arrows.



Fig. 1

Fig. 1 Joined? _____

Load _____

Stress _____



Fig. 2

Fig. 2 Joined? _____

Load _____

Stress _____

Fig. 3 Joined? _____

Load _____

Stress _____

2. Name other one-piece functional objects that you commonly see.

3. Name other objects you see around you that consist of two or more metal parts joined together. Describe the method of joining the parts and list one advantage of the method.



Fig. 3

CONCLUSIONS & INFERENCES

John is in a hardware store. Is he likely to find one-piece objects or objects made of joined parts in the tools,

housewares, plumbing and cabinetry sections? Where will he find objects intended to be joined to other objects?