

# **Degrees of Reading Power**

## **State Released Items**



A flute is a pipe whose sides are pierced with holes. When a player blows across a mouthpiece at one end of the instrument, air inside the pipe vibrates. This 1 produces sound. The longer the column of vibrating air, the lower the note sounds. The shorter the column, the higher it sounds.

With all the tone holes open, the column of air inside the flute extends only from the mouthpiece to the first hole. The instrument sounds its highest note then. If the hole nearest the mouthpiece is covered, air no longer escapes there. The air is 2. The vibrating column is lengthened at least to the second hole. When this happens, the tone 3. As the holes are covered one by one advancing toward the base, the pitch becomes lower.

Melody is produced by covering tone holes in sequence. This is usually done by pressing down on small, padded keys mounted over the tone holes. Some keys, though, are located on the instrument's underside. These keys are harder to 4. They are operated indirectly by pressing a lever which, in turn, depresses or raises them.

To produce an accurate tone, the flute must be well made. The padded keys that cover the tone holes must be neither too loose nor too tight. A good 5 is essential. The keys must cover the tone holes snugly enough to prevent air from escaping, yet be loose enough to respond to the player's touch.

Correct fingering and a well-made instrument do not ensure beautiful sound. Something else is 6. The player's lips and tongue must be correctly shaped to form the notes, and the player must apply just the right amount of pressure to the airstream. In addition, the airstream must be directed neither too low nor too high in relation to the mouthpiece. Managing the mouth and breath so precisely is difficult. A great deal of 7 is required. This comes only with practice.



- 1 a) bow            b) stroke  
c) hand            d) record  
e) motion

- 2 a) blocked        b) heated  
c) wasted          d) cleared  
e) filled

- 3 a) improves      b) matches  
c) repeats         d) changes  
e) disappears

- 4 a) count          b) scale  
c) reach           d) miss  
e) purchase

- 5 a) sheet           b) fit  
c) lesson          d) song  
e) beginning

- 6 a) heard          b) needed  
c) taught          d) written  
e) performed

- 7 a) control         b) metal  
c) standing        d) reading  
e) support



Many materials are available to the artist wishing to carve a piece of sculpture. In choosing one, the artist must take into account the intended subject matter, location, and approximate size of the finished work. There is also more to 8. For example, the sculptor's style and budget affect the decision.

In carving a piece of sculpture, the artist begins with a solid block of material and removes segments until the object has the desired shape. The mass is gradually 9. Of the materials amenable to this process, three that have traditionally been employed are stone, wood, and ivory. Each of these 10 has different characteristics. Their relative strengths and weaknesses determine where each is best used.

Stone has long been the material favored for monumental sculpture. Such pieces by definition are large, and they are frequently located outdoors. Stone tolerates rain, snow, cold, heat, and other weather conditions. Thus the 11 are not a problem. Stone's texture and hardness make it suitable for carving in large pieces. Stone has the drawback, though, of fracturing if carved too thin. Hence stone, with the possible exception of marble, is not suitable for showing fine detail.

If a detailed work is envisioned, wood may be selected. Wood can be carved thinner than stone. While individual pieces are not strong enough for works of large proportion, wood can be jointed. The desired 12 can thus be achieved. Wood is neither as tough nor as durable as stone. Changes in humidity or temperature may cause wood to split, and it is subject to attack by insects and fungus. Hence, wood must be 13. This makes it impractical for outdoor use.

Ivory, dense and hard, is an alternative for detailed work. Its physical properties invite delicate carving. Ivory, though, lacks the ready availability of stone and wood. The 14 is limited. Accordingly, ivory is expensive. Furthermore, it is neither durable enough for outdoor display nor strong enough for massive works.

- 8 a) express      b) learn  
c) see            d) purchase  
e) consider

- 9 a) reduced      b) raised  
c) covered      d) cleaned  
e) positioned

- 10 a) figures        b) schools  
c) periods        d) substances  
e) methods

- 11 a) lights        b) elements  
c) crowds        d) hands  
e) edges

- 12 a) price         b) surface  
c) color          d) copy  
e) scale

- 13 a) smoothed    b) matched  
c) sheltered     d) added  
e) supported

- 14 a) time          b) space  
c) view          d) supply  
e) effect





Supernovas are cataclysmic explosions thought to signal the death of massive stars. Throughout a star's existence, astrophysicists believe, a sequence of nuclear reactions occurs in the stellar core: hydrogen nuclei fuse to form helium, helium nuclei subsequently fuse to create carbon, and heavier elements are thereafter fused in sequence. These nuclear reactions generate sufficient internal pressure in the stellar core to offset the star's tendency to collapse under its own gravitation. Hence, \_\_\_\_\_ **15** \_\_\_\_\_ is maintained.

Eventually, however, nuclear fuel in the core is exhausted, heat production ceases, and the star's ability to withstand its own gravitation vanishes. The star then \_\_\_\_\_ **16** \_\_\_\_\_. Collapse continues until, by processes incompletely understood, the collapse or implosion is transformed to an explosion so intense it blasts most of the stellar material into space, hurtling outward at fantastic speed. The material is thus \_\_\_\_\_ **17** \_\_\_\_\_.

Energy output from supernovas is prodigious: a single supernova emits the light of 10 billion suns, yet light and other types of electromagnetic radiation represent a small fraction of the supernova's energy. The total \_\_\_\_\_ **18** \_\_\_\_\_ is far greater. Kinetic energy of the exploding matter is 10 times its electromagnetic energy, while perhaps 100 times more energy than the electromagnetic emissions dispersed is carried away in a flash of massless particles called neutrinos.

Astrophysicists have scant likelihood of actually observing a supernova in progress. Such \_\_\_\_\_ **19** \_\_\_\_\_ are too rare. But while supernovas themselves occur infrequently in Earth's galaxy, remnants of ancient supernovas are detectable by radio telescope, x-ray telescope, and optical telescope. Although the residual stellar core is itself virtually invisible, it emits detectable radio signals and influences the orbital pattern of nearby celestial objects. Thus, its \_\_\_\_\_ **20** \_\_\_\_\_ can be inferred. Stellar material blown off by the supernova expands as a bubblelike shell, heating surrounding interstellar gases to an intense luminosity. Extrapolation based on the current expansion rate of these remnants enables scientists to calculate when the supernova occurred. They can therefore \_\_\_\_\_ **21** \_\_\_\_\_ the explosion.



- 15** a) darkness      b) distance  
c) growth        d) balance  
e) motion

- 16** a) tips            b) approaches  
c) appears       d) ages  
e) contracts

- 17** a) protected    b) scattered  
c) connected    d) weighed  
e) compared

- 18** a) length        b) loss  
c) force          d) range  
e) area

- 19** a) events        b) substances  
c) bodies        d) results  
e) storms

- 20** a) rank          b) shape  
c) presence      d) color  
e) development

- 21** a) date          b) prevent  
c) change        d) witness  
e) control