To form stone tools by detaching controlled flakes of variable thickness, width, length, form, and size, a knowledge of the principle of the cone and its behavior in relation to the fracture of isotrophic material will help clarify the mechanical principles involved in flintknapping. Whether by instinct or reasoning, ancestral man preconceived the plane of fracture and induced controlled fracture in lithic materials by taking advantage of the fracture angle of the cone of force.

When lithic material is subjected to stress, the force radiates from the point of contact forming a cone and causing the material to fracture as the cone is compressed. Isotrophic material is highly elastic and when the applied force exceeds the elastic limit of the material fracture results. Fracture originates at the apex of the cone and terminates at its basal margin. Therefore the direction of applied force is different than the fracture angle of the cone. One must bear in mind that a flake scar, which is derived from the fracture angle of the cone, results from force which is applied at other than a right angle to the central axis of of the cone or tangential to the direction of force. The funnel is used to illustrate the cone principle as related to stoneworking.

Exceptions to the rule of using the fracture angle of the cone are: (1) Splitting of the cone by inducing shear from bi-polar forces (2) Cone collapse due to excessive compressive force.

Pressure Flaking Photography Outline