

Nova: Making Stuff Colder Viewing Questions

Answer the following questions as you watch....your answers can be brief.

1. What is heat?

energy, vibration of molecules

2. What is temperature?

amount of heat energy

3. What is cold?

absence of heat

4. What direction does heat travel?

high to low
(hot to cold)

5. By what percentage does hypothermia therapy increase that chance of surviving a heart attack?

2-3X more likely

6. What is the human body's natural response to getting cold?

metabolism increases, burn more oxygen
so body can generate more heat

7. What animal does the video discuss that can survive being completely frozen?

North American wood frog

8. What is the longest period of time a heart, on ice, can last before being transplanted?

6 hrs

9. What term do we use for the frozen earth found underground in Alaska?

permafrost

10. At what temperature does Helium liquify?

4 K

11. What do we call a substance that conducts electricity without resistance?

superconductor

12. Who was D-Wave's first buyer for a quantum computer?

Lockhead Martin
(aerospace company)

13. What name do we give billionths of a Kelvin?

nanokelvin
nK

14. What type of atoms do the engineers at MIT use to reach super-cold temperatures?

Sodium

15. What do we call the new state of matter that exists at billionths of a degree Kelvin?

Bose-Einstein condensate

16. How does the study of the super-cold systems help us understand the super-hot systems that existed during the Big Bang?

Studying super-cold can also represent what happens when atoms are super-hot

17. Why is it that we can never reach absolute zero?

can never eliminate all motion,
particles always have some energy