Artificial Heart Valve Design

Your Chance to be a Biomedical Engineer
Circulatory System

Video
What is a Heart Valve?

- Heart Valve Video
What Does a Heart Valve Do?

- Maintain the one direction flow of blood through the heart
- Heart valves allow blood to flow through in a forward direction, but does not let any blood through in the opposite direction
Why does a heart valve start leaking?

- Muscle tissue in the heart can be damaged from heart attacks, rheumatic fever, or an infection of the heart valve tissue
- Years of high blood pressure and/or years of heavy alcohol drinking can cause the tissue of the heart valve to stretch.
- Heart valves do not close completely when the tissue it stretched.
Problems with leaking heart valves - symptoms

- The patient's heart valve allows blood to flow in the wrong direction.
- The heart works less efficiently and can lead to the following symptoms:
  - Shortness of breath
  - Fatigue
  - Swollen feet or ankles
  - Chest pain
  - Feeling faint or dizzy
Why those symptoms?

• Diseased Mitral Valve (valve regulating blood from the lungs) can actually let a tiny bit of blood back towards the lungs.

• The heart has to work much harder to deliver blood to the body.

• Long periods of the heart being overworked can cause the beginning of heart failure (i.e. shortness of breath, fatigue)

• Swollen feet and ankles is caused from general poor circulation.
Heart Valve Replacement

• When symptoms become very serious, patients need a new heart valve.
• A new heart valve will help patient live normal life again!
• 3 heart valve replacement videos - if you easily get queasy, then beware!
Let’s Brainstorm more ideas on the white board!