

**Learning Outcomes:**

Nature of Science	Students should be able to appreciate the role of science in society; and its personal, social and global importance; and how society influences scientific research
Physical World	Students should be able to design, build, and test a device that transforms energy from one form to another in order to perform a function; describe the energy changes and ways of improving efficiency

**Investigation**

You are an architect - let's imagine you are Dermot Bannon on RTE's Room to Improve!

Your client is a family who wants to make sure that materials in some rooms absorb sunlight to help keep the rooms warm. In other rooms, they want sunlight to be reflected to keep those rooms cool. The family also wants to make one room a media room.

They want the sound in the media room to be just right for action movies!

Your task as their architect is to develop a model to demonstrate to the client how light or sound waves will be reflected, absorbed, or transmitted using different materials in each room. You are then required to present this to Galway County Council so that the family may get planning permission.

Review how light and sound waves behave when they travel from one medium to another.

- Decide which type of wave—light waves or sound waves—to model.
- Brainstorm a plan to develop a model to demonstrate how sound or light waves behave.
  - Identify some common materials used in houses that might reflect, absorb, or transmit your chosen wave.
  - Your model can use actual materials, or it can be a detailed drawing or simulation that clearly describes the behaviour of your chosen waves.
  - Once you have a plan in place, develop your model.

**Evaluate your model.**

- How did you model the reflection of light or sound waves as it applies to the construction of a home?
- How did you model the absorption of light or sound waves as it applies to the construction of a home?
- How did you model the transmission of light or sound waves as it applies to the construction of a home?
- Use your model to prepare a short presentation to present to the client and then to Galway County Council to explain how you will construct their home to meet their light or sound specifications.

