

Mirror, Mirror, on the wall... - Teachers' Notes

Does backing away from a wall mirror allow you to see more of yourself?

(Adapted from <http://www.figurethis.org/challenges/c09/challenge.htm>)

Curriculum Links:

Mirrors and reflection are an interesting physical science area usually investigated within the context of studying light. Large mirrors used in space or lenses used in telescopes are other applications.

This task requires students to have a working understanding of ratio at Level 4.

Background:

It is interesting to first explore the assumptions students have about mirrors and what they think about the area that can be reflected. They may make initial statements such as: "the further away you stand, the more you see reflected" or "the bigger the mirror more you can see". The purpose of this investigation is to test and compare with measurement and to create a general statement that stands for what is observed.

Through doing the portrait/landscape investigation students should discover that they can see 2x the length of the mirror in the reflected image. The relationship between the length of the mirror and the real life length of what is reflected is 1:2. This ratio is not affected by the distance from which you stand from the mirror, as long as your eye level stays the same (this is achieved by having the reflection of the top of your head aligned with the top edge of the mirror).

Suggestions:

Student can investigate the angle of the sight line by doing this extension activity from:

http://www.figurethis.org/challenges/c09/try_these4.htm