## Challenge 1

1. Describe conceptually the relationship between distance, physical size and apparent angular size.
2. Derive a mathematical relationship between distance, physical size and apparent angular size.

## Challenge 2

- Sketch pictures of spiral galaxies that are the same physical size. Call them A and B.
- Have one person stand with galaxy A at a distance of 15 tiles (ft).

1. What is the angular size of galaxy A?
2. How far away would a second person need to stand so that galaxy $B$ is half of the angular size of galaxy A?
3. Test your prediction.
