

# Research Card:

## The Greenhouse Effect (Gr. 7)



### Guiding Question

Why does the shape of a greenhouse influence how stable it is under the impact of various forces?

#### Design Type

##### A-Frame

#### Pros

- ✓ Beginner build
- ✓ Low amount of materials required for basic shape
- ✓ Uses some strong shapes
- ✓ Very low risk from wind-related forces

#### Cons

- ✓ Interior space may be very limited
- ✓ Ground space may be limited
- ✓ Increased potential for high air humidity, which can damage plants
- ✓ Very high risk from precipitation-related forces



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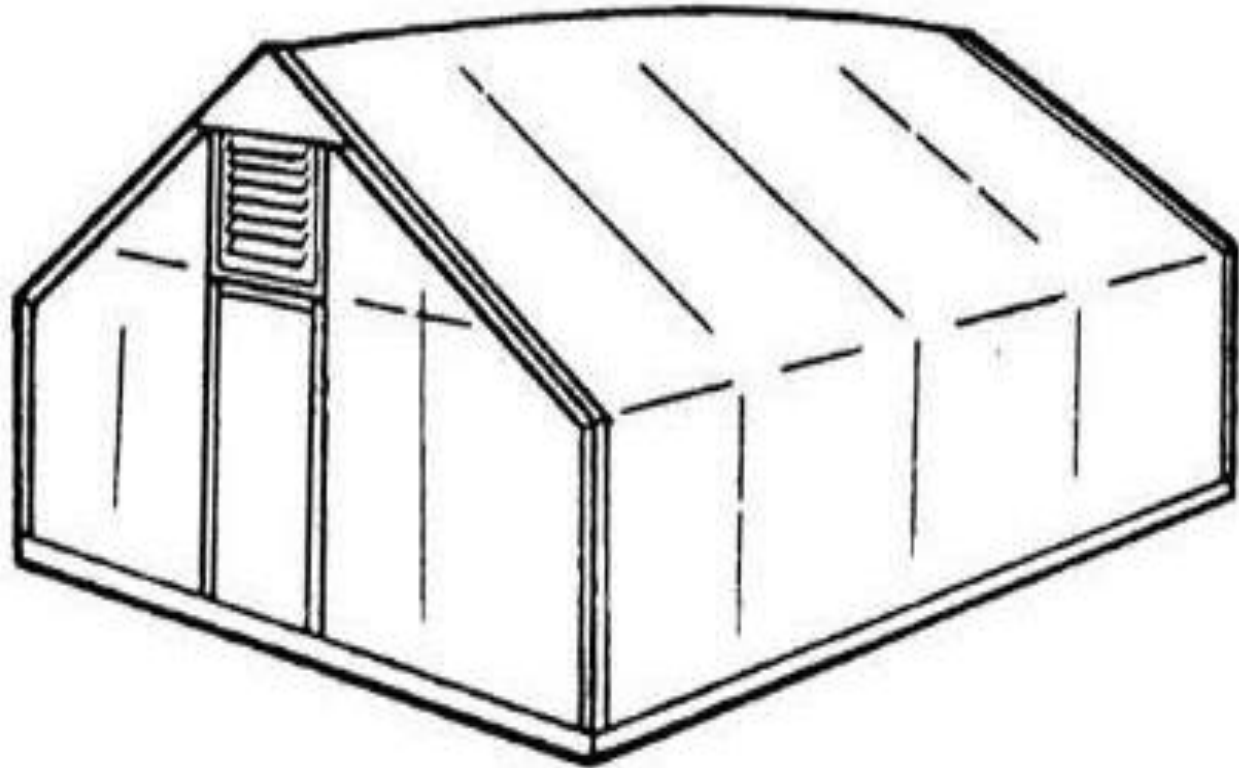
##### Gable Roof

#### Pros

- ✓ Intermediate build
- ✓ Moderate amount of materials required for basic shape
- ✓ Uses some strong shapes
- ✓ Low risk from precipitation-related forces

#### Cons

- ✓ Interior space may be limited
- ✓ Ground space may be limited
- ✓ Increased potential for high air humidity, which can damage plants
- ✓ Moderate risk from wind-related forces



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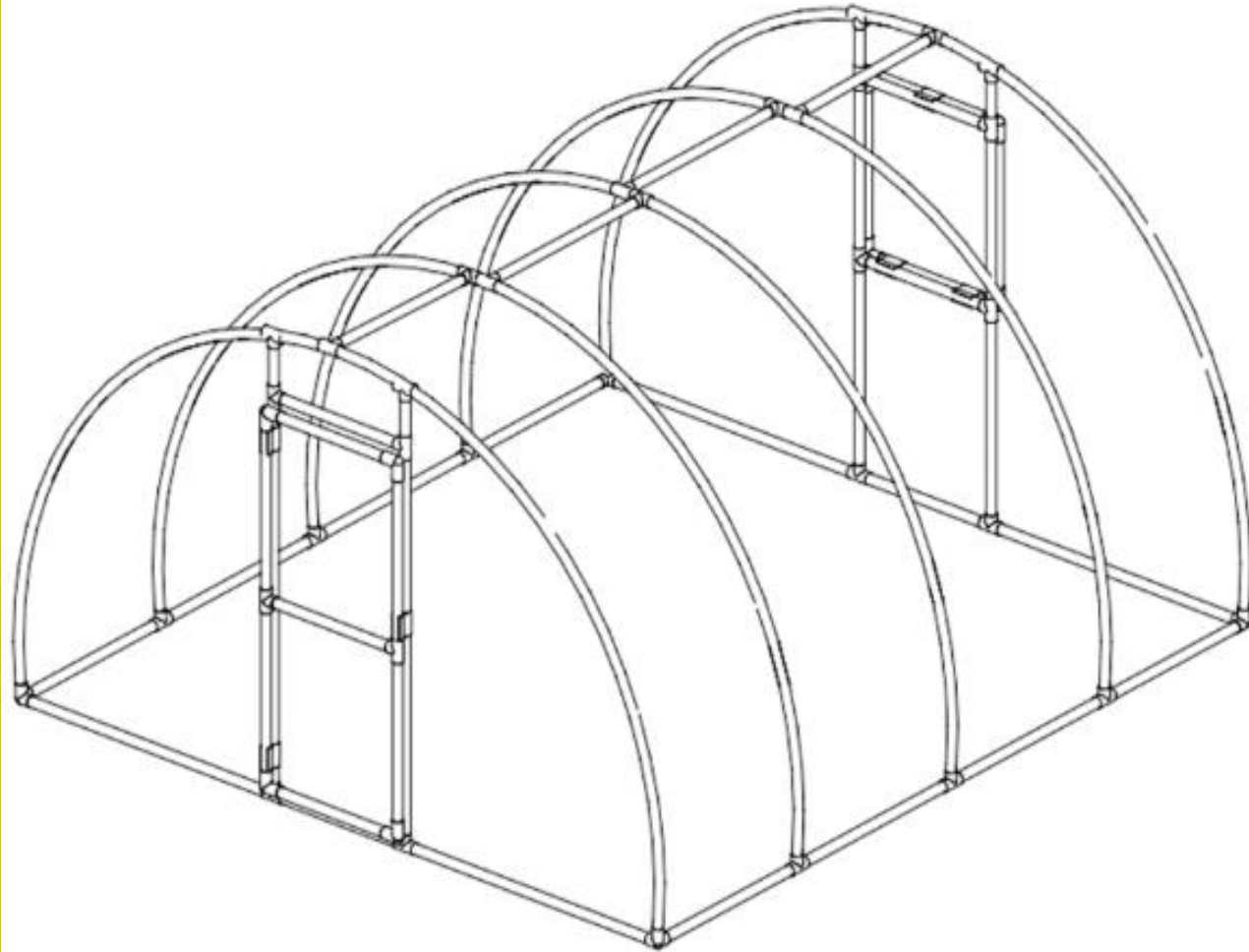
### Design Type Hoop House

### Pros

- ✓ Intermediate build
- ✓ Moderate amount of materials required for basic shape
- ✓ Interior space is usually adequate
- ✓ Decreased potential for high air humidity
- ✓ Uses some strong shapes
- ✓ Low-moderate risk from wind-related forces

### Cons

- ✓ Ground space may be limited
- ✓ High risk from precipitation-related forces



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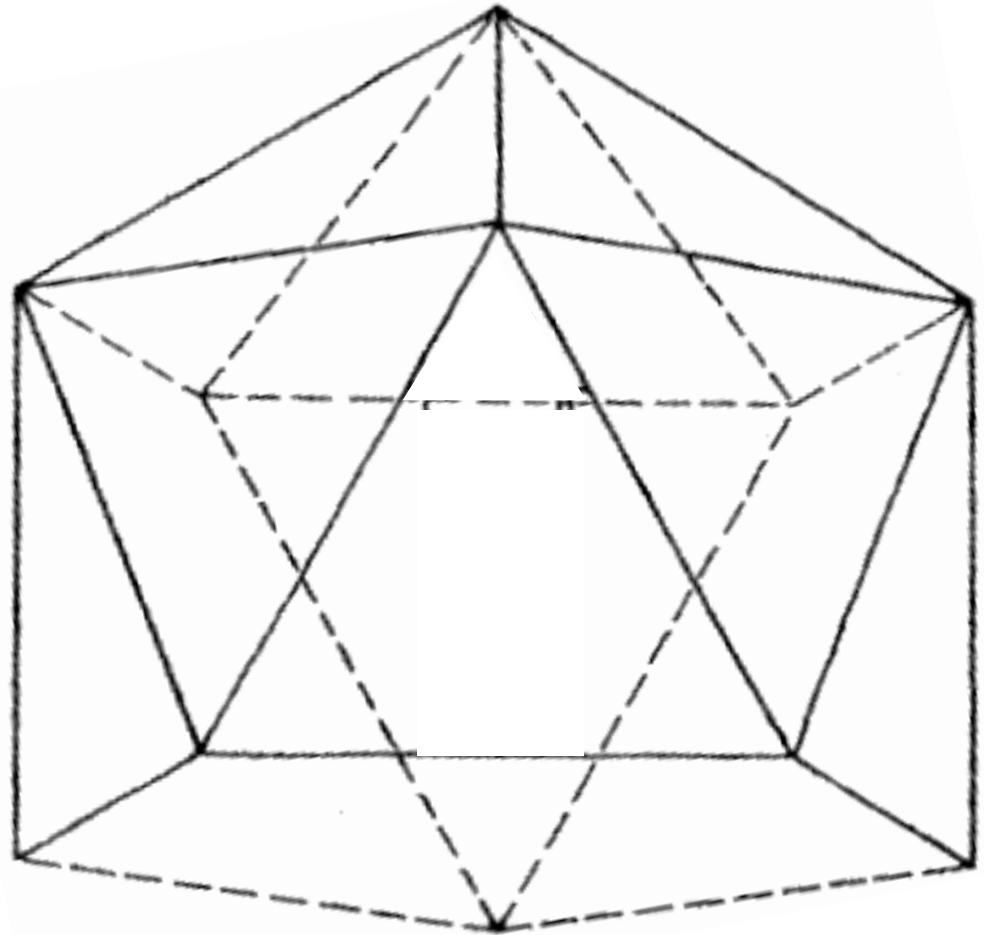
##### Tri-Penta

#### Pros

- ✓ Interior space is usually adequate
- ✓ Uses several strong shapes
- ✓ Low risk from precipitation-related forces

#### Cons

- ✓ Advanced build
- ✓ High amount of materials required for basic shape
- ✓ Ground space may be limited
- ✓ Moderate potential for high air humidity, which can damage plants
- ✓ Moderate risk from wind-related forces



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## Guiding Question

Why does the shape of a greenhouse influence how stable it is under the impact of various forces?



### Design Type

Geodesic Dome



### Pros

- ✓ Interior space is usually ample
- ✓ Ground space is usually ample
- ✓ Decreased potential for high air humidity
- ✓ Uses many strong shapes
- ✓ Very low risk from wind-related forces



### Cons

- ✓ Expert build
- ✓ High amount of materials required for basic shape
- ✓ High risk from precipitation-related forces

