# What are Human Factors in Design?

Worksheet

Human factors in design means designing spaces around real human bodies and behavior - anthropometric dimensions, reach, sightlines, and sensory comfort - so buildings work well for the people who use them.

## Questions

1. What does anthropometrics primarily measure?

A) Sound levels
B) Static body dimensions
C) Air quality
D) Lighting levels

2. What is the goal of universal design?

A) Design only for average-sized adults
B) Make spaces usable by the widest range of people
C) Reduce construction cost only
D) Maximize floor area only

3. Why use percentile ranges (e.g. 5th-95th) in human factors design?

A) To save material cost
B) Because body sizes vary and a single measurement won't fit everyone
C) Because building codes require exactly one size
D) To make construction faster

4. Which of these is an ergonomics concern rather than a pure anthropometric one?

A) Standing height
B) Repetitive motion and posture during a task
C) Shoulder width
D) Hand length

5. A kitchen counter is designed at 900 mm high. Why does this matter for human factors?

6. A doorway is designed at 900 mm clear width for wheelchair access. What human-factors principle does this reflect?

7. A control panel is placed at eye level with high-contrast labels. What human factor is being addressed?

8. Define: What is the difference between anthropometrics and ergonomics?

9. Define: Why do designers use percentile data?

10. Define: What is universal design?

# Answer Key

1. B) Static body dimensions - Anthropometrics studies body measurements like height, reach, and shoulder width.

2. B) Make spaces usable by the widest range of people - Universal design aims for accessibility and usability across ages and abilities.

3. B) Because body sizes vary and a single measurement won't fit everyone - Percentile ranges account for the natural variation in human body sizes.

4. B) Repetitive motion and posture during a task - Ergonomics studies dynamic interaction and strain over time, not just static measurements.

5. Standard countertop height (900 mm) matches the comfortable elbow-height working range for most adults Too high causes shoulder strain; too low causes back strain Designers use the 5th-95th percentile range to pick a height that suits most users

6. Anthropometric data for wheelchair users (including armrests) requires roughly 750-800 mm minimum clearance 900 mm adds a safety margin for maneuvering and real-world variation This reflects universal/inclusive design, a core human-factors principle

7. Perceptual/cognitive ergonomics: visibility and legibility reduce errors Eye-level placement matches natural sightlines, reducing neck strain High contrast supports users with lower vision, improving accessibility

8. Anthropometrics measures body dimensions; ergonomics studies how people interact with their environment using those dimensions.

9. Because body sizes vary widely - using 5th to 95th percentile ranges ensures a design fits most of the population, not just the average.

10. Designing spaces usable by the widest range of people, including those with disabilities, without special adaptation.