**Single Vision Lenses:**

1. Purpose: Single vision lenses have a single prescription power throughout the entire lens. They are typically used to correct nearsightedness (myopia), farsightedness (hyperopia), or astigmatism.

2. Design: These lenses have a uniform curvature, with the same prescription from top to bottom.

3. Usage: Single vision lenses are suitable for people who need correction for only one type of vision problem, either near or distance vision.

4. Advantages:

- Clear and simple vision correction.

- Widely available and affordable.

- Suitable for most everyday activities.

**Bifocal Lenses:**

1. Purpose: Bifocal lenses are designed to correct two types of vision problems: near vision (reading) and distance vision. They have two distinct prescription areas in the same lens.

2. Design: The upper part of the lens corrects distance vision, while the lower part is for close-up tasks like reading.

3. Usage: Bifocals are commonly used by individuals with presbyopia, an age-related condition that affects near vision.

4. Advantages:

- Eliminates the need for switching between multiple pairs of glasses.

- Provides clear vision at both near and far distances.

**Photochromic Lenses:**

1. Purpose: Photochromic lenses, often known by the brand name Transitions, automatically adjust their tint based on UV light exposure. They provide vision correction along with UV protection.

2. Design: Photochromic molecules within the lens darken in response to UV rays and lighten when UV exposure diminishes.

3. Usage: Photochromic lenses are suitable for individuals who spend time both indoors and outdoors, as they provide clear vision in various lighting conditions.

4. Advantages:

- Convenient for individuals who don't want to switch between regular and sunglasses.

- UV protection for the eyes.

- Reduces glare and improves visual comfort in changing light conditions.

**High-Index Lenses:**

1. Purpose: High-index lenses are designed for individuals with high prescriptions (strong nearsightedness or farsightedness). They are thinner and lighter than standard lenses, making them more cosmetically appealing.

2. Design: High-index lenses have a higher refractive index, allowing them to bend light more efficiently, resulting in thinner lens profiles.

3. Usage: High-index lenses are ideal for people who need strong prescription lenses but want to avoid the thick and heavy appearance of traditional lenses.

4. Advantages:

- Thinner and lighter, reducing lens thickness and weight.

- Improved cosmetic appearance, especially for strong prescriptions.

- Can reduce distortion in peripheral vision.