**UR East Overview of Year**

**10th/11th Grade Vision Care I Curriculum**

| SEPT | OCT | NOV | DEC | JAN | FEB | MARCH | APRIL | MAY | JUNE |
|---|---|---|---|---|---|---|---|---|---|
| Unit 1<br>Ocular Structure and Lenses | | Unit 2<br>Lensometry | | | Unit 3<br>Layout and Blocking | | Unit 4<br>Edging and Mounting | Unit 5<br>Final Verification | |

| **Unit 1-** | **Understanding** | **Essential Question** |
|---|---|---|
| **Mission/Vision alignment**<br>• **Tenacious:** Recognizes and takes advantage of opportunities to discover passions<br>• **Think Purposeful:** Thinks creatively to solve problems, make decisions, and take action<br>• **Advocate:** Accepts differences and listens to the voice of others | Enduring Understandings<br>*Scholars will understand that…*<br>1. *The curvature of the crystalline lens of the eye focuses images on the retina of the eye*<br>2. *Changes to the cornea and crystalline lens of the eye affect the ability to see*<br>3. *Myopic eyes are near-sighted and can be corrected with minus lenses; hyperopic eyes are far-sighted and can be corrected with plus lenses.*<br>4. *Astigmatism is a natural disorder of the eye that causes myopia and hyperopia and can be corrected with "cylinder" in prescription eye glasses*<br>5. *Spherical lenses don't correct astigmatism, but correct refractive imperfections of the eye*<br>6. *Images focus through the pupil and onto the retina where the light rays are collected and sent to the brain for visual processing*<br>7. *Concave and convex lenses refract light differently* | Essential Questions<br>*Scholars will consider such questions as…*<br>1. How does my eye make an image?<br>2. Why can't I see like other people?<br>3. How do glasses help to correct my vision? |
| **CDOS Standards (Career Development and Occupational Studies):**<br>1, 2, 3a, and 3b | | |
| **Performance Task:** Scholars will demonstrate how the mammalian ocular system projects images on the back of the eye using models. Through manipulation of models, students will demonstrate to the teacher how eyes work correctly as well as how misshapen eyes project | | |

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|---|
| images. Scholars will use available lenses to correct vision issues, demonstrating an understanding of how light passes through concave and convex lenses. |
| **Formative Assessments: Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile.** |

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| Unit 2- Lensometry | Understanding | Essential Question |
|---|---|---|
| **Mission/Vision alignment**<br>• **Tenacious:** Learns from mistakes; picks up and keeps going<br>• **Think Purposeful:** Produces work that meets college and work place standards<br>• **Advocate:** Speaks confidently and is willing to respectfully voice opinions to advocate for self or others | Enduring Understandings<br>*Scholars will understand that…*<br>1. *Spherical lenses don't correct astigmatism, but correct refractive imperfections of the eye*<br>2. *Lensometers read the "power" of a lens and allow opticians to either make or neutralize patient prescriptions*<br>3. *Astigmatic lenses have 2 powers, which are obtained by turning the power drum and cylinder axis wheel*<br>4. *The axis of an astigmatic lens is determined by turning an axis wheel and this corresponds to an axis in a patients eye* | Essential Questions<br>*Scholars will consider such questions as…*<br>1. What tools help me to make glasses to help people see?<br>2. Why do I need to calibrate my tools?<br>3. How does turning the power drum help to determine the power of a lens? |
| **CDOS Standards (Career Development and Occupational Studies):**<br>1, 2, 3a, and 3b<br><br>**CCTC Standards (Common Career Technical Core)**<br>1, 2, 4, 8, 9, 11 | | |
| **Performance Task:**<br>Scholars will neutralize 5 finished pairs of glasses, finding both the powers and the axis, and extrapolate the vision imperfection based on the prescription of the glasses as if they were working in an optical shop and needed to find the prescriptions for patients. | | |

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**Formative Assessments:**

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| Unit 3-<br>Layout and Blocking | Understanding | Essential Question |
|---|---|---|
| **Mission/Vision alignment**<br>• **Tenacious:** Uses feedback to refine thinking or actions<br>• **Think Purposeful:** Uses foundational knowledge and essential literacies to develop deeper understandings<br>• **Advocate:** Leads by example<br><br>**CDOS Standards (Career Development and Occupational Studies):**<br>1, 2, 3a, and 3b<br><br>**CCTC Standards (Common Career Technical Core)**<br>1, 2, 4, 8, 9, 11 | Enduring Understandings<br>*Scholars will understand that…*<br>1. *Pupillary distance is unique to individuals and is important in placing optical centers of lenses in front of a patients pupil*<br>2. *Spotting and dotting a lens places a mark on the optical center of the lens, which is the spot where the patients need to look through*<br>3. *Decentration moves the optical center of a lens from the geometric center of a frame to its placement in front of the patients pupil.*<br>4. *Blocking places a block at the location for a patients ophthalmic needs for edging lenses*<br>5. *The Boxing system provides for a standardized method of measuring the frame for manufacturing and provides measurements for frame calculations* | Essential Questions<br>*Scholars will consider such questions as…*<br>Why is the optical center of a lens so important?<br><br>Why is decentration important?<br><br>What is my pupillary distance?<br><br>How do I prepare a lens to be cut for a specific frame? |
| **Performance Tasks:**<br><br>Scholars will practice skills by obtaining accurate PDs of 10 Scholars, spot and dot the optical centers of 8 lenses to the doctors prescribed axis, mathematically calculate decentration for a patient and specific frame, and accurately block 8 lenses based on the calculated decentrations | | |
| **Formative Assessments:** | | |

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<table>
<tr><th>Unit 4-<br>Edging & mounting</th><th>Understanding</th><th>Essential Question</th></tr>
<tr><td>Mission/Vision alignment<ul><li>Tenacious: Take risks in order to learn and grow</li><li>Think Purposeful: Critically questions to refine and or extend understanding</li><li>Advocate: Accepts differences and listens to the voice of others</li></ul></td><td rowspan="2">Enduring Understandings<br>Scholars will understand that…<br>1. Specific measurements are important to correctly cutting and placing a lens in a frame<br>2. Millimeters make a difference when cutting lenses<br>3. Patterns are used to cut a correct shape for the lens<br>4. Hand beveling creates an important safety step in the use of eyewear<br>5. Safety is always important in a manufacturing environment</td><td rowspan="2">Essential Questions<br>Scholars will consider such questions as…<br>How much is too much?<br><br>What safety features does an edger have?<br><br>How do I know if I did it right?<br><br>Why aren’t my glasses straight?</td></tr>
<tr><td>CDOS Standards (Career Development and Occupational Studies):<br><br>1, 2, 3a, and 3b<br><br>CCTC Standards (Common Career Technical Core)<br><br>1, 2, 4, 8, 9, 11</td></tr>
<tr><td colspan="3">Performance Task:<br><br>Scholars will act as a fabricating optician by cutting, hand beveling, and mounting lenses in a frame using an edger while observing all safety procedures</td></tr>
<tr><td colspan="3">Formative Assessments:<br><br>Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile.</td></tr>
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| Unit 5-<br>Final Verification | Understanding | Essential Question |
|---|---|---|
| **Mission/Vision alignment**<br>• **Tenacious:** Defines goals and develops a plan to meet them<br>• **Think Purposeful:** Listens to and seeks out varying perspectives as part of thinking, decision making, and problem solving<br>• **Advocate:** Identifies and utilizes skills to support self and others | Enduring Understandings<br>*Scholars will understand that…*<br>1. *The work ticket is used to keep track of the information necessary to make patients glasses*<br>2. *Accuracy in each step helps to ensure accuracy in the final product*<br>3. *Bench alignment of frames helps to ensure proper fit of manufactured glasses on patients face* | Essential Questions<br>*Scholars will consider such questions as…*<br>How do I know if I did it right?<br>Why aren't my glasses straight?<br>What can I do with the skills I learned this year? |
| **CDOS Standards (Career Development and Occupational Studies):**<br>1, 2, 3a, and 3b<br><br>**CCTC Standards (Common Career Technical Core)**<br>1, 2, 4, 8, 9, 11 | | |
| **Performance Task:**<br>Scholars will act as an optician as they manufacture, from start to finish, a pair of glasses for a patient using tools and techniques learned throughout the course of the school year. They will use an actual prescription for a specific patient and they will check for accuracy of the final product prior to acting as an optician and dispensing the glasses to the patient. | | |

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