# **W**ashington **C**omprehensive **A**ssessment of **S**cience

## Test Design & Item Specifications

Grade 8

Science Assessment Development Team

**February 5, 2020**

Washington Office of Superintendent of
PUBLIC INSTRUCTION

# Logistics

- Webinar Recording, PowerPoint slides and FAQ

  https://www.k12.wa.us/student-success/testing/state-testing-overview/washington-comprehensive-assessment-science/wcas-educator-resources
- Chat Box
- pdEnroller

  https://www.pdenroller.org

# Objectives

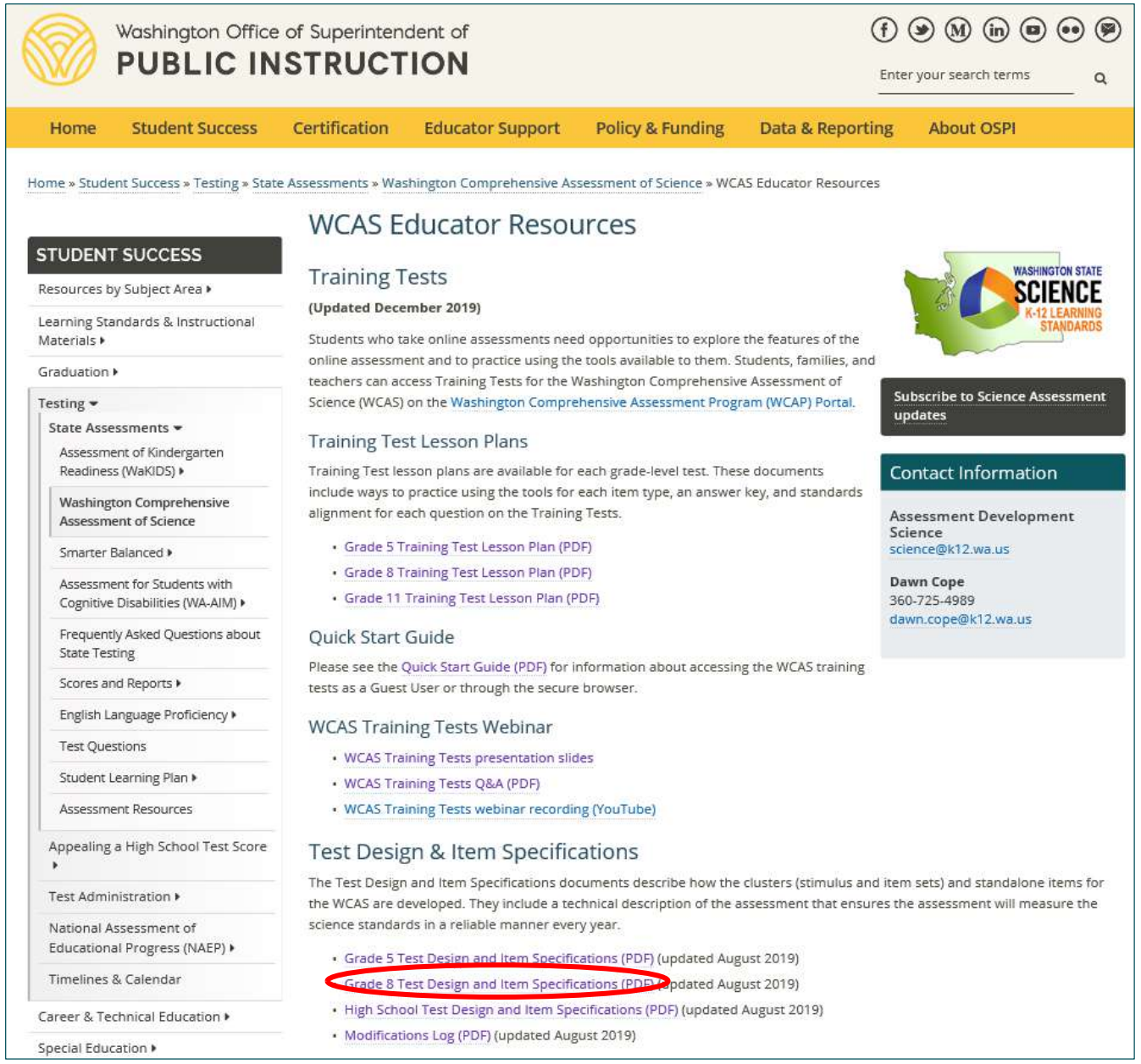
- Share the design and development of the Grade 8 WCAS
- Share how Grade 8 WCAS items are aligned to and assess the *2013 Washington State K-12 Science Learning Standards* which are the *Next Generation Science Standards*, or *NGSS*.

# Contact Information

- Dawn Cope—Science Assessment Lead
  - dawn.cope@k12.wa.us
- Jacob Parikh—Science Assessment Specialist
  - jacob.parikh@k12.wa.us
- Korey Peterson—Science Assessment Specialist
  - korey.peterson@k12.wa.us
- Jessica Cole—Program Specialist
  - jessica.cole@k12.wa.us
- General e-mail account
  - science@k12.wa.us

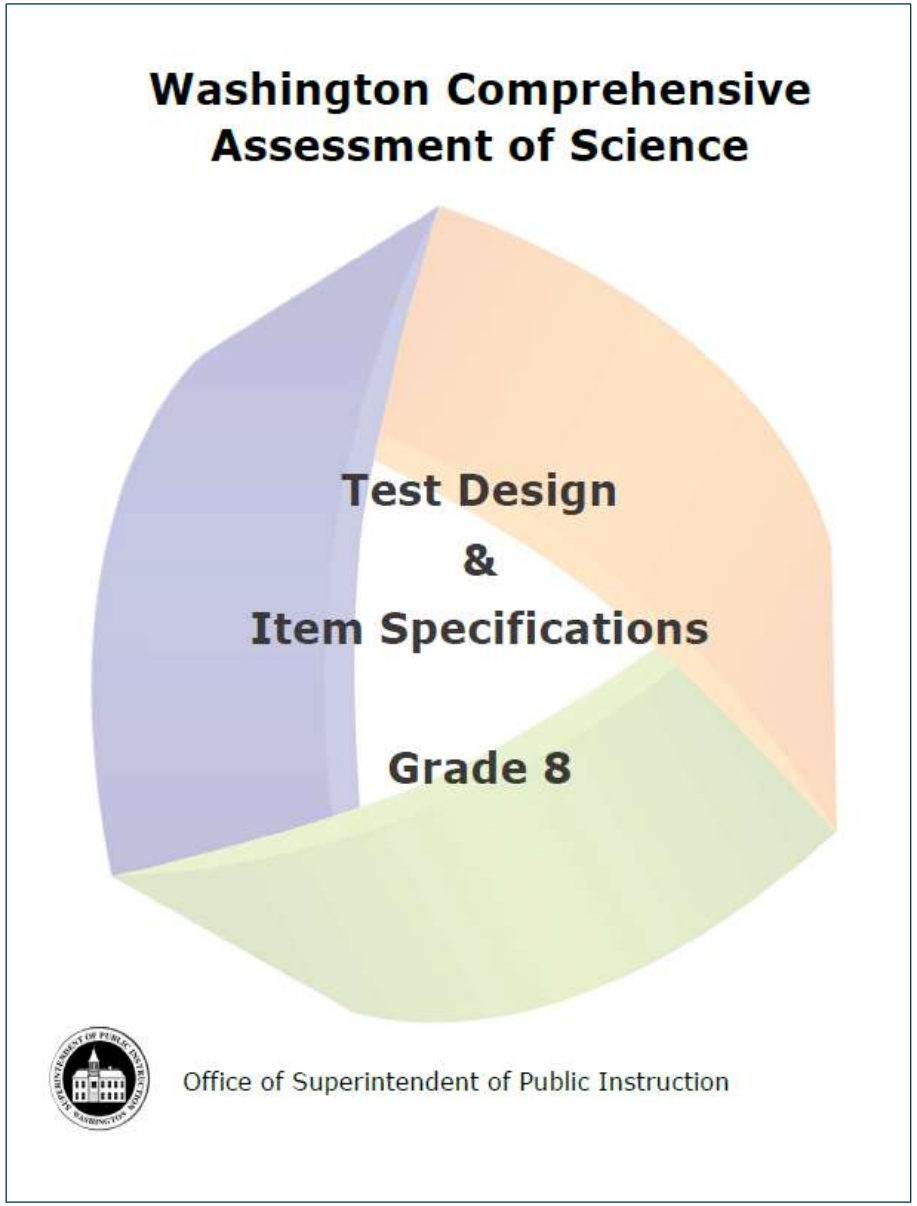
# Test Design and Item Specifications-Grade 8

https://www.k12.wa.us/student-success/testing/state-testing-overview/washington-comprehensive-assessment-science/wcas-educator-resources



# Document Components

- Test Design (pages 1-14)
  - Development Cycle
  - Structure of the Test
  - Item Types
  - Test Structure
  - Standards Overview
  - Resources and References
- Item Specifications (pages 15-141)
- SEP, DCI, and CCC Vocabulary (pages 142-144)

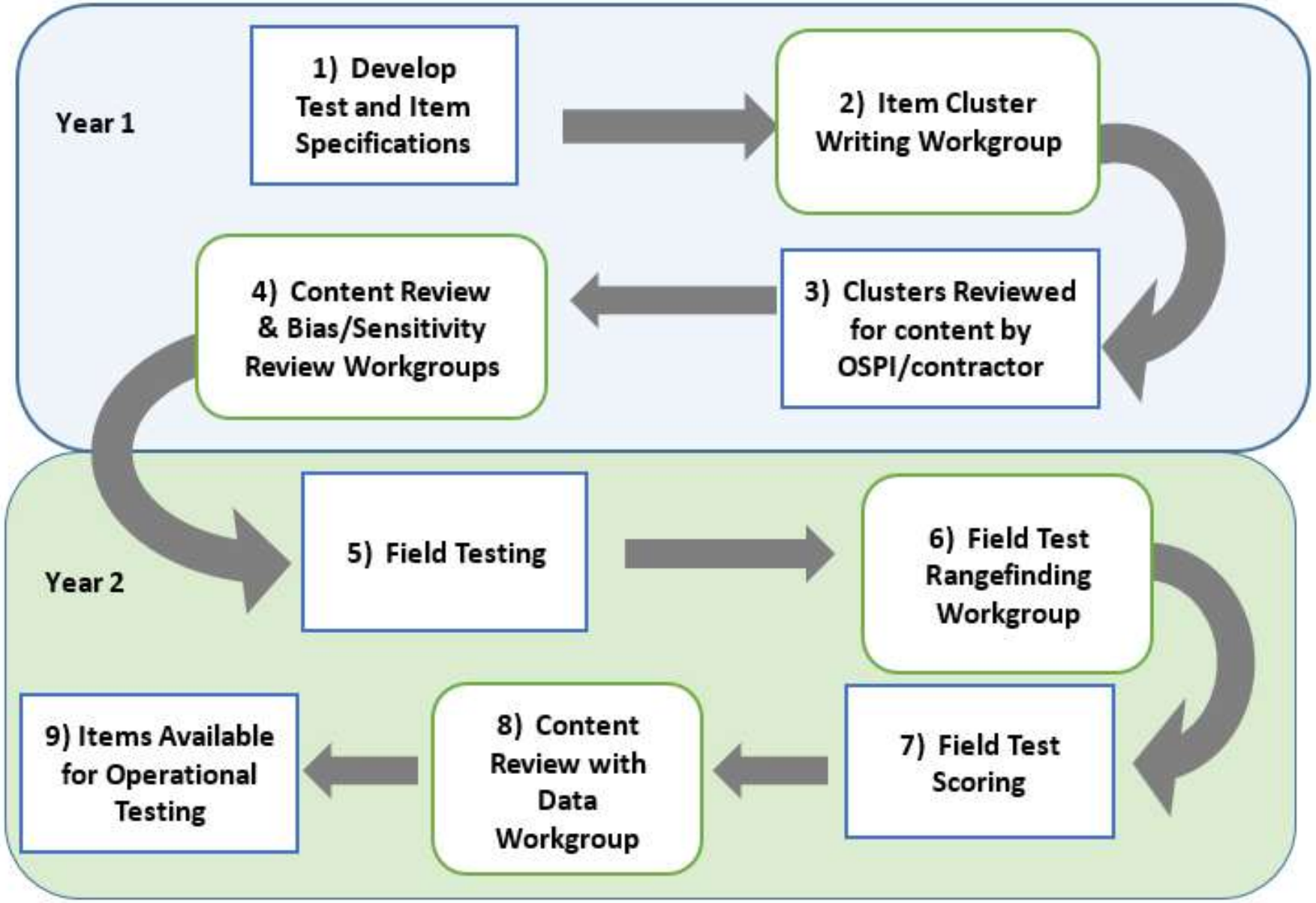


# WCAS Development Process

## Educator Involvement

# Science Assessment Development Cycle

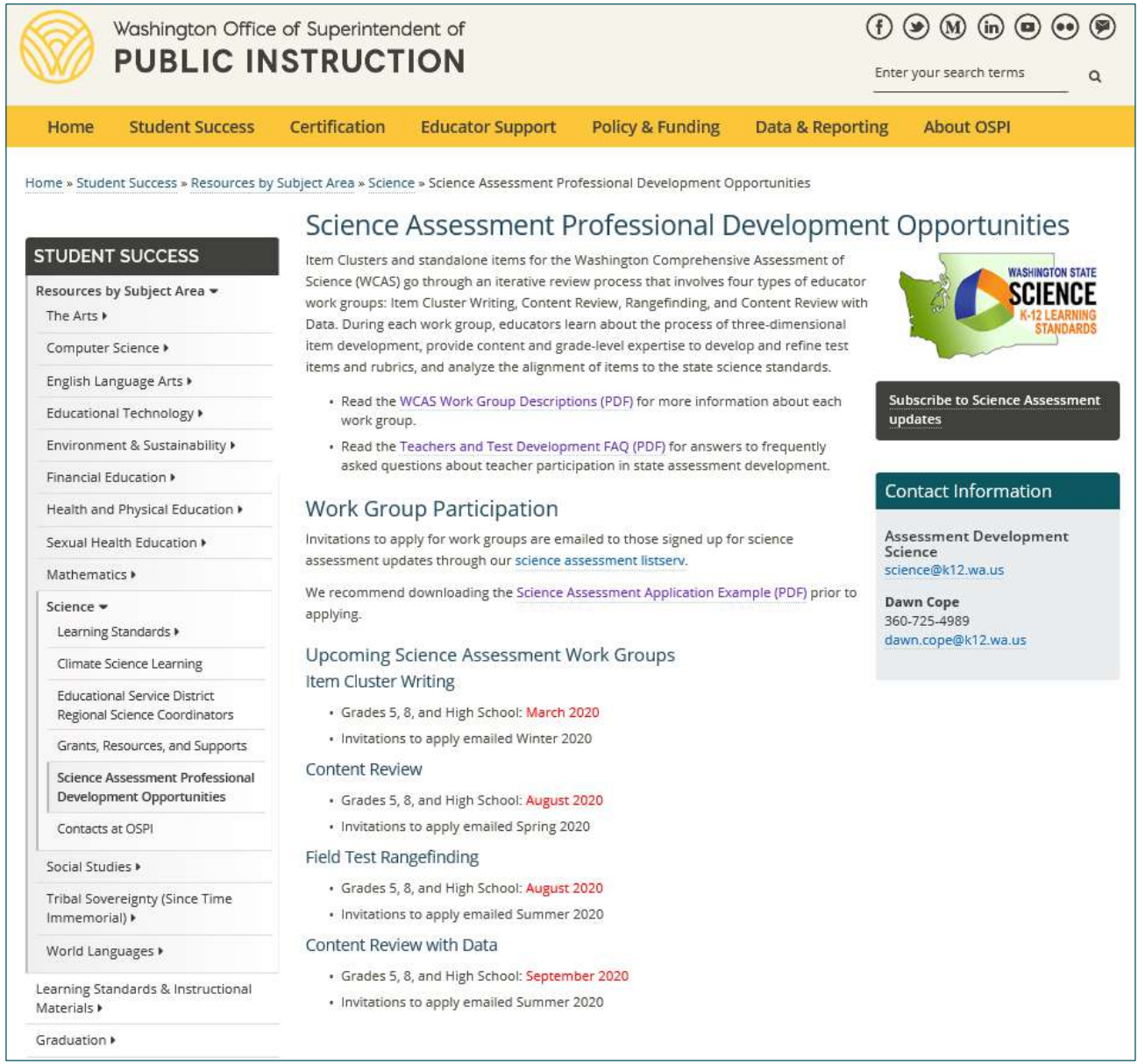
Pages 1-2



# Join Us!

Science Assessment Professional Development Opportunities https://www.k12.wa.us/student-success/resources-subject-area/science/science-assessment-professional-development-opportunities

Invitations to apply for work groups are emailed to those signed up for science assessment updates through the science assessment listserv. https://public.govdelivery.com/accounts/WAOSPI/subscriber/new



# Washington Standards Overview

NGSS 101

# NGSS Middle School Band

Pages 10-12

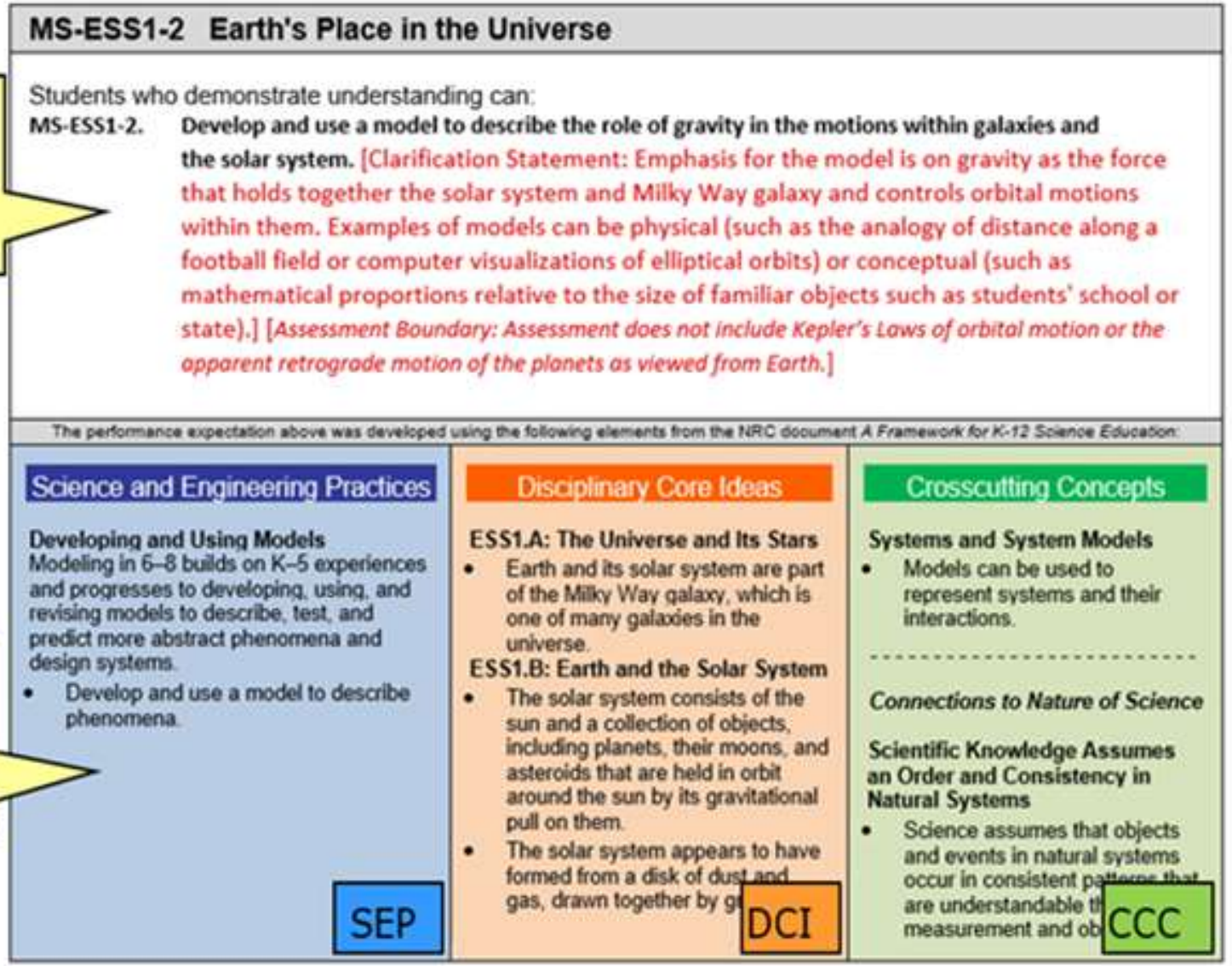
- Domains
  - Physical Sciences (PS)—19 Performance Expectations
  - Life Sciences (LS)—21 Performance Expectations
  - Earth and Space Sciences (ESS)—15 Performance Expectations
  - Engineering Design (ETS)—4 Performance Expectations

Each Performance Expectation includes a Science and Engineering Practice (SEP), a Disciplinary Core Idea (DCI), and a Crosscutting Concept (CCC)

# NGSS Performance Expectation

Performance Expectation Statement

Dimension Boxes



**MS-ESS1-2 Earth's Place in the Universe**

Students who demonstrate understanding can:

**MS-ESS1-2.** **Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.** [Clarification Statement: Emphasis for the model is on gravity as the force that holds together the solar system and Milky Way galaxy and controls orbital motions within them. Examples of models can be physical (such as the analogy of distance along a football field or computer visualizations of elliptical orbits) or conceptual (such as mathematical proportions relative to the size of familiar objects such as students' school or state).] [*Assessment Boundary: Assessment does not include Kepler's Laws of orbital motion or the apparent retrograde motion of the planets as viewed from Earth.*]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

**Science and Engineering Practices**

**Developing and Using Models**
Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.

- Develop and use a model to describe phenomena.

SEP

**Disciplinary Core Ideas**

**ESS1.A: The Universe and Its Stars**

- Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe.

**ESS1.B: Earth and the Solar System**

- The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.
- The solar system appears to have formed from a disk of dust and gas, drawn together by g

DCI

**Crosscutting Concepts**

**Systems and System Models**

- Models can be used to represent systems and their interactions.

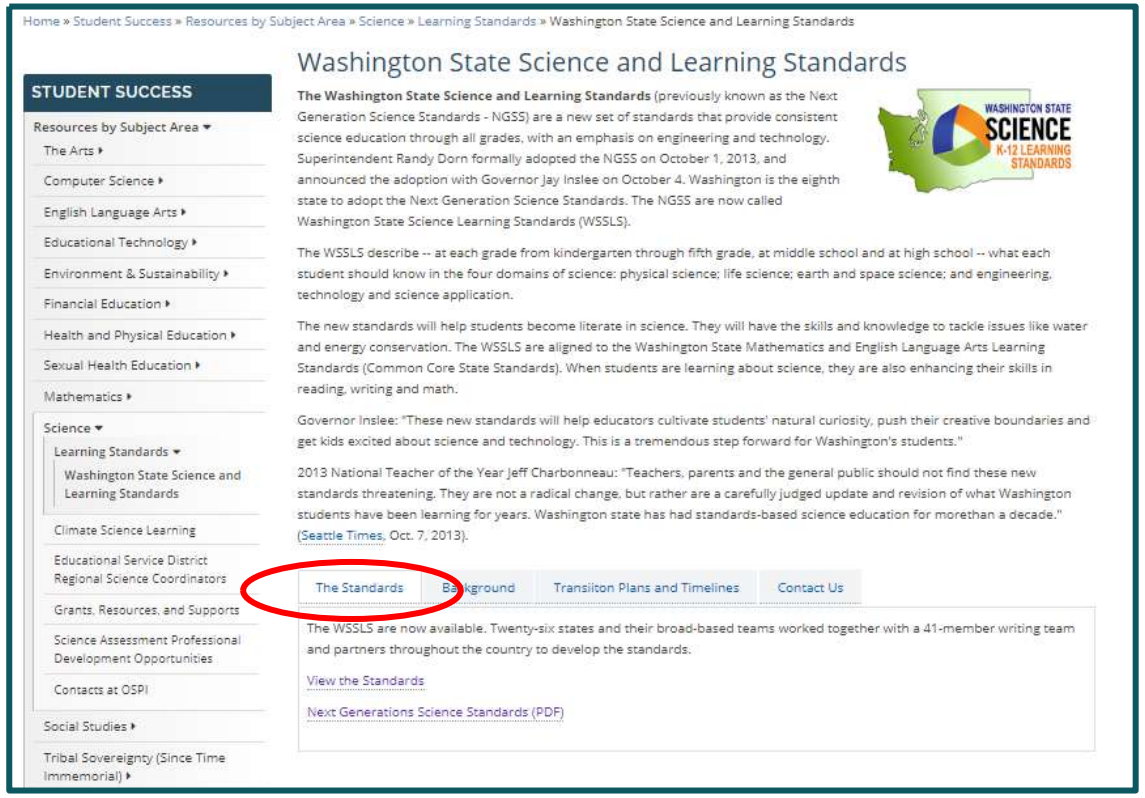
***Connections to Nature of Science***

**Scientific Knowledge Assumes an Order and Consistency in Natural Systems**

- Science assumes that objects and events in natural systems occur in consistent pa
  are understandable th
  measurement and ob

CCC

# *The 2013 Washington State K-12 Science Learning Standards* are the *Next Generation Science Standards* (*NGSS*)

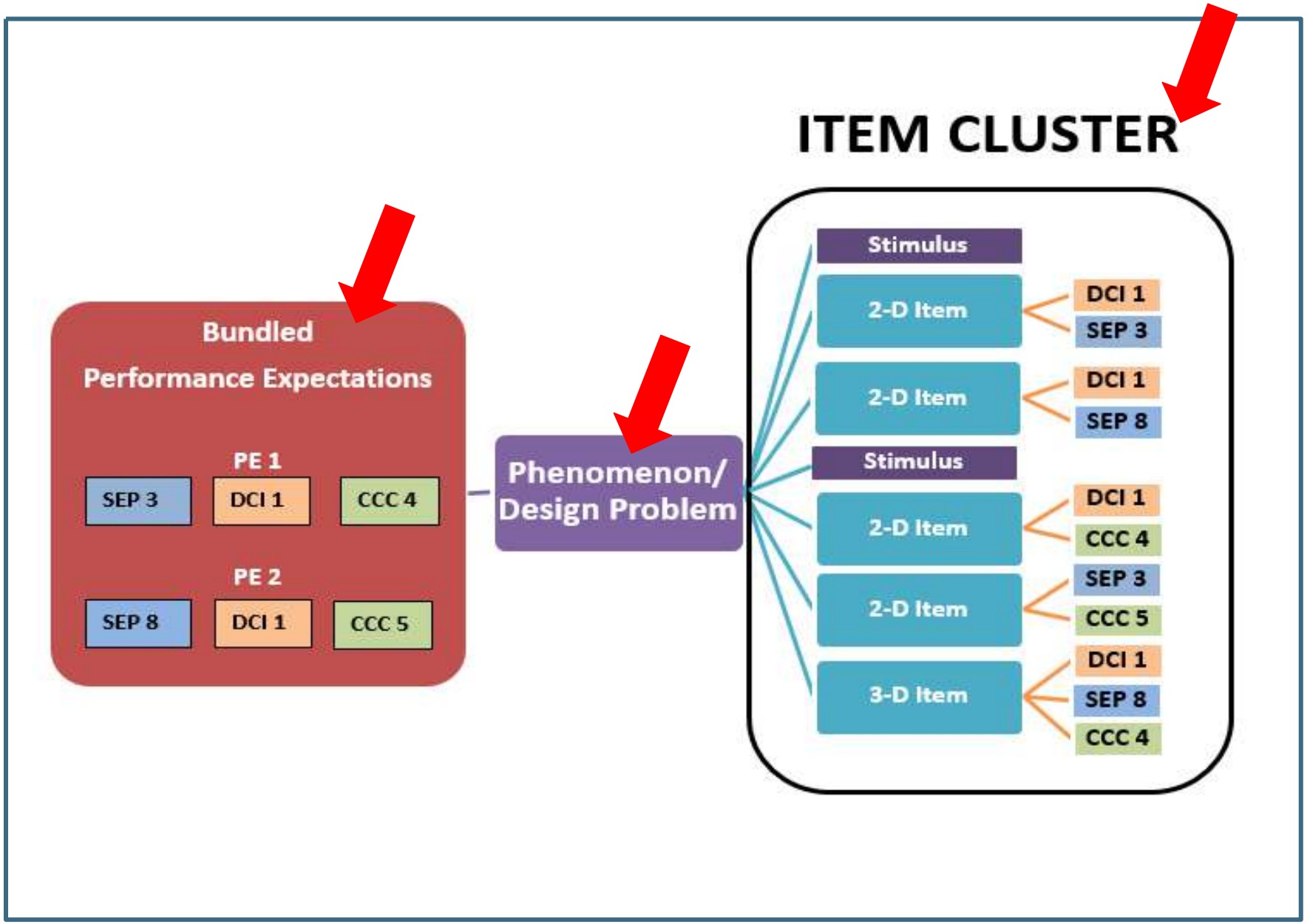



- OSPI Science Standards Webpage https://www.k12.wa.us/student-success/resources-subject-area/science/science-k%E2%80%9312-learning-standards/washington-state-science-and-learning-standards
- Next Generation Science Standards https://www.nextgenscience.org/search-standards
- Get to Know the Standards https://www.nextgenscience.org/get-to-know
- Understanding the Standards: https://www.nextgenscience.org/understanding-standards/understanding-standards

# Test Structure

# Cluster Map

Page 3



# Standalone Items

- Use a single item to address two or three dimensions of one PE
- Stimulus and question/questions

# Grade 8 Blueprint

Pages 8-9

| Reporting Area | Percentage of PEs per Science Domain in the Standards | Percent Range for the WCAS per Science Domain | Score Point Range for WCAS per Science Domain |
|---|---|---|---|
| Practices and Crosscutting Concepts in Physical Sciences | 35% | 30-40% | 12-16 |
| Practices and Crosscutting Concepts in Life Sciences | 38% | 33-43% | 13-17 |
| Practices and Crosscutting Concepts in Earth and Space Sciences | 27% | 22-32% | 9-13 |

- 40 Total points
- 6-12 standalone items
- 5 clusters
- Estimated testing time: 120 minutes

**ETS PEs are assessed but not reported separately.**

# Performance Expectation Coverage

Pages 8-9

## Stand Alone items

- 6-12 items per operational form
- Each item must assess 2 or 3 dimensions of a single PE
- Increases DCI, SEP, and CCC coverage for the whole test

## Item Clusters

- 3-6 items per cluster
- 5 clusters per operational form
- At least one PE from each domain (PS, LS, ESS, and ETS) represented
- A minimum of 3 different SEPs across the clusters
- A minimum of 3 different CCCs across the clusters

# Structure and Administration

Pages 8-9

## Structure

- Operational Section
  - Counts toward a student's score
  - Fixed form
- Field Test Section
  - Embedded in the online administration
  - Does not count toward a student's score
  - A cluster or several standalone items

## Administration

- Can be administered in multiple sessions like the Smarter Balanced ELA and Math tests
- 1 to 3 sessions recommended

# Features & Item Types

Pages 4-7

## Features

- Collapsible Stimuli
- Locking items
- Multipart items
- Animation
- Periodic Table https://wa.portal.cambiumast.com/
- Calculator https://www.desmos.com/testing/washington

## Item Types

- Multiple Choice
- Multiple Select
- Short Answer
- Drag and Drop
- Hot Text
- Table Match
- Table Input
- Edit Task Inline Choice
- Simulation

# WCAS Training Tests

- Grades 5, 8, 11
- Accessed through the WCAP Portal https://wa.portal.airast.org/training-tests.stml
- Grade 5 Lesson Plan https://www.k12.wa.us/sites/default/files/public/science/pubdocs/LessonPlans5-FINAL%20DRAFT.pdf
- Grade 8 Lesson Plan https://www.k12.wa.us/sites/default/files/public/science/pubdocs/LessonPlans8-FINAL%20DRAFT.pdf
- Grade 11 Lesson Plan https://www.k12.wa.us/sites/default/files/public/science/pubdocs/LessonPlans11-FINAL%20DRAFT.pdf
- Quick Start https://www.k12.wa.us/sites/default/files/public/science/pubdocs/OnlineTrainingTestQuickStart-FINAL_DRAFT.pdf

# Q&A

# Item Specifications

# MS-LS3-2

Pages 86-87

Front Page

| Performance Expectation | **MS-LS3-2** Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. | | |
|---|---|---|---|
| Dimensions | **Science & Engineering Practices** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| | **Developing and Using Models**<br>Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.<br>• Develop and use a model to describe phenomena. | **LS1.B: Growth and Development of Organisms**<br>• Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring. *(secondary)*<br><br>**LS3.A: Inheritance of Traits**<br>• Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited.<br><br>**LS3.B: Variation of Traits**<br>• In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other. | **Cause and Effect**<br>• Cause and effect relationships may be used to predict phenomena in natural systems. |
| These item specifications were developed using the following reference materials: | | | |
| K-12 Framework | pp. 56–59 | pp. 145–147<br>pp. 158–160<br>pp. 160–161 | pp. 87–89 |
| NGSS Appendices | Appendix F<br>p. 6 | Appendix E<br>p. 4<br>Appendix E<br>p. 6 | Appendix G<br>pp. 5–6 |
| Clarification Statement | Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission from parent(s) to offspring and resulting genetic variation. | | |
| Assessment Boundary | An assessment boundary is not provided for this PE. | | |

# MS-LS3-2

Pages 86-87

Back Page

Items may ask students to:

| Code | Alignment | Item Specification |
|---|---|---|
| MS-LS3-2.1 | SEP-DCI-CCC | **Develop** and/or **use** a **model** to describe **cause and effect** relationships between **sexual** and/or **asexual reproduction** and **genetic variation** in offspring. |
| MS-LS3-2.2 | SEP-DCI | **Develop** and/or **use** a **model** to describe **sexual** and/or **asexual reproduction** and/or **genetic variation** in offspring. |
| MS-LS3-2.3 | DCI-CCC | Use **cause and effect** relationships to connect **sexual** and/or **asexual reproduction** to **genetic variation** in offspring. |
| MS-LS3-2.4 | SEP-CCC | **Develop** and/or **use** a **model** to describe cause and effect relationships. |

**Details and Clarifications**

- **Develop** and/or **use** a **model** is expanded to include:
  - using a given complete or partial model to make predictions and/or describe phenomena
  - using a model to show relationships among variables
  - revising a given complete or partial model
  - describing the limitations of a complete or partial model
  - using a model to represent current understanding of a system
  - using a model to aid in the development of questions and/or descriptions
- **Models** that describes **cause and effect** relationships between **sexual** and/or **asexual reproduction** and **genetic variation** may include, but are NOT limited to:
  - a diagram or simulation showing combinations of alleles inherited by offspring
  - a diagram, simulation, or description of a combination of alleles from parents
- **Cause and effect** relationships involving **variation** of **inherited traits** in **sexual reproduction** may include, but are NOT limited to:
  - two sets of chromosomes, one from each parent, combine, resulting in unique chromosome pairs in offspring
  - one allele for each of many genes is inherited from each parent, resulting in genetic variation in offspring
- **Cause and effect** relationships involving **variation** of **inherited traits** in **asexual reproduction** may include, but are NOT limited to:
  - offspring receive a set of chromosomes from one parent, with the same number and type of chromosomes as the parent, resulting in minimal genetic variation

# Item Specifications Activity

**Section 1—Sea Star Reproduction**

**Read the information and answer the questions.**

Sea stars reproduce both asexually and sexually.

Asexual reproduction requires a single parent sea star. The parent sea star splits into two parts and each part develops into an offspring sea star. The Asexual Reproduction in Sea Stars diagram models this process.

**Asexual Reproduction in Sea Stars**

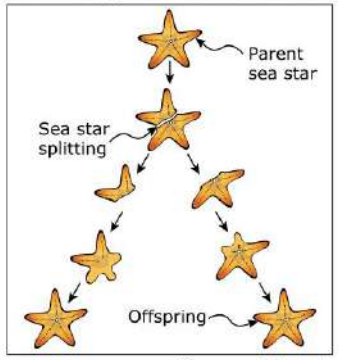



Diagram not to scale

Sexual reproduction requires two parent sea stars. The male parent releases sperm cells and the female parent releases egg cells into the water. The egg and sperm cells unite to form an embryo which develops into an adult sea star. The Sexual Reproduction in Sea Stars diagram models this process.

**Sexual Reproduction in Sea Stars**

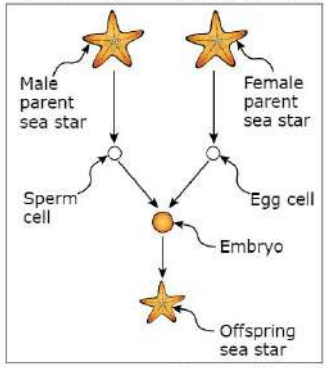


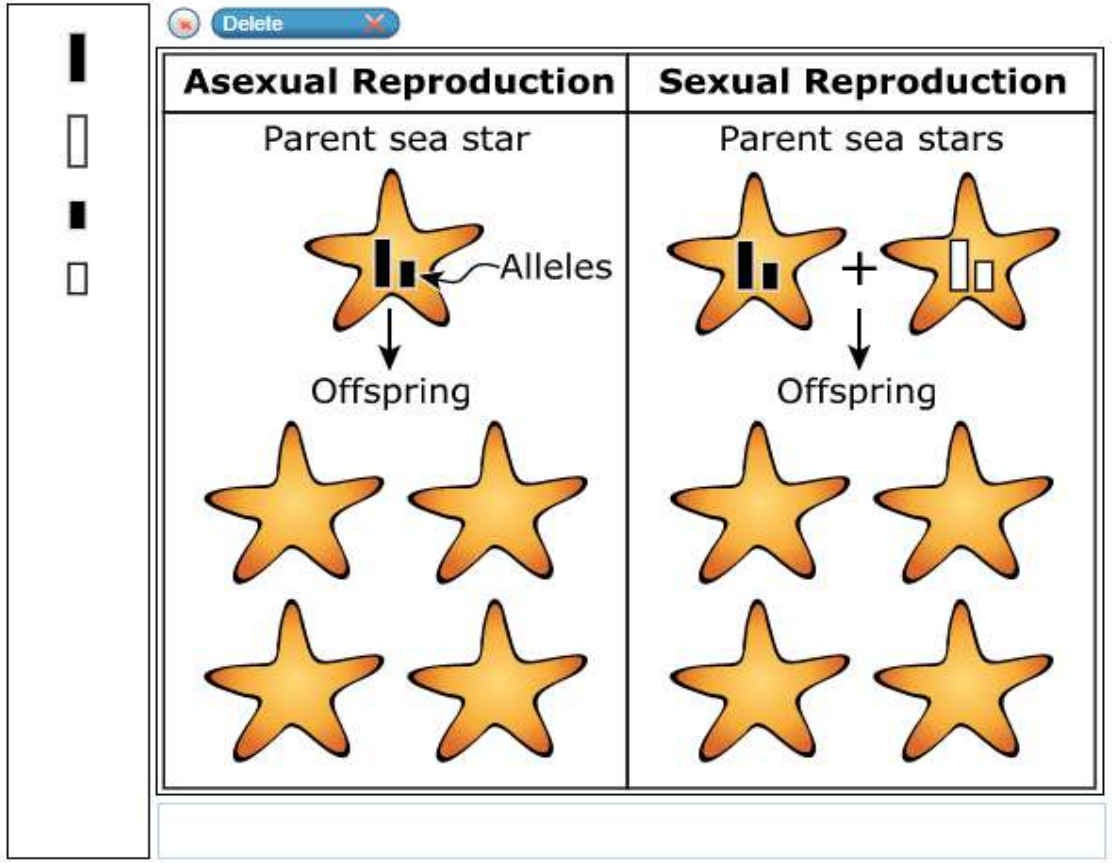

Diagram not to scale

# Item 1

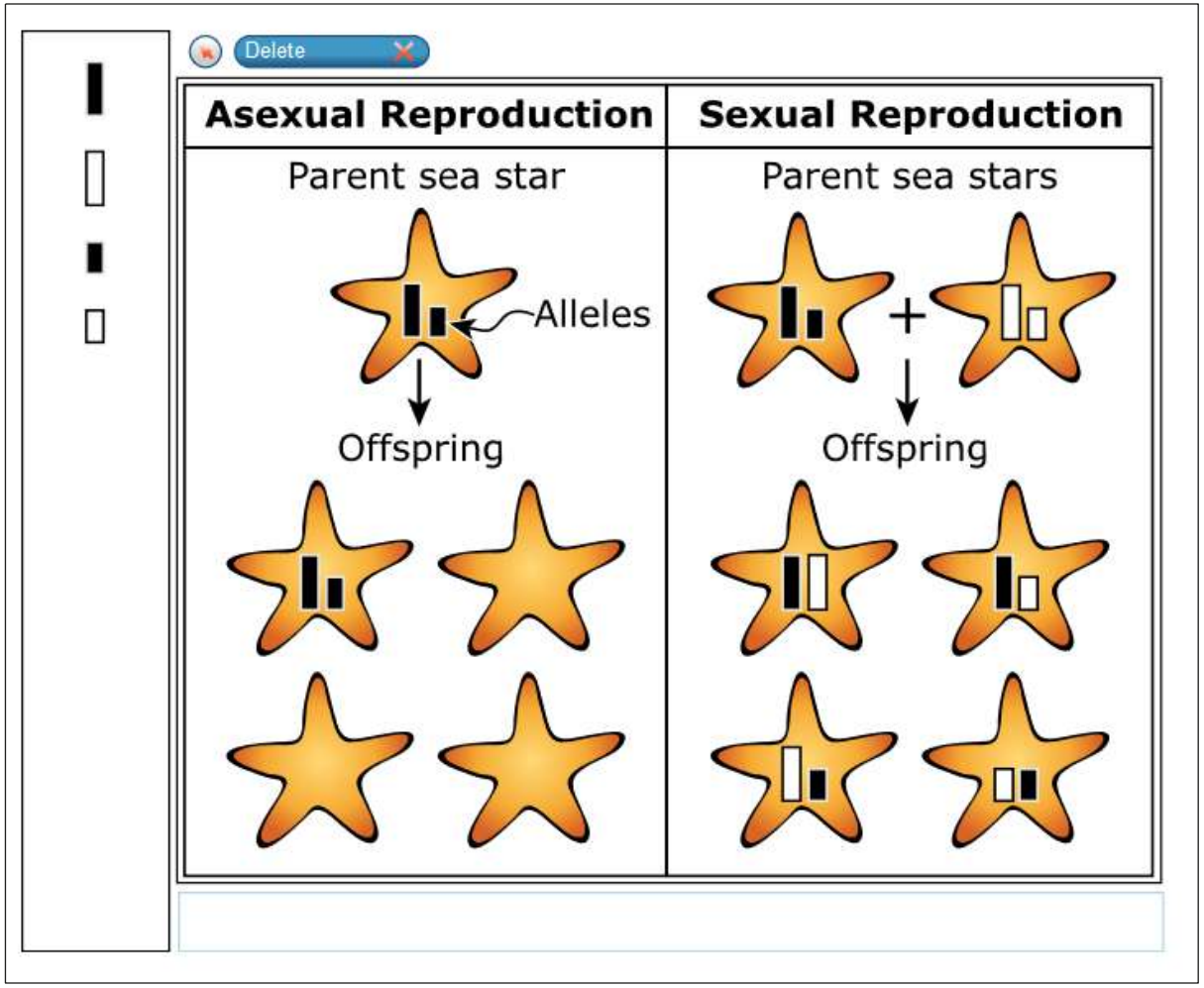
Make a model to show how the two alleles are passed to sea star offspring during asexual and sexual reproduction.

Move the alleles onto the offspring to model **all** possible genetic combinations in the offspring.

- Alleles may be used more than once.
- Not all alleles or offspring may be used.



## Item 1


Delete
Asexual Reproduction
Sexual Reproduction
Parent sea star
Parent sea stars
Alleles
Offspring
Offspring

Items may ask students to:

| Code | Alignment | Item Specification |
|---|---|---|
| MS-LS3-2.1 | SEP-DCI-CCC | **Develop** and/or **use** a **model** to describe **cause and effect** relationships between **sexual** and/or **asexual reproduction** and **genetic variation** in offspring. |
| MS-LS3-2.2 | SEP-DCI | **Develop** and/or **use** a **model** to describe **sexual** and/or **asexual reproduction** and/or **genetic variation** in offspring. |
| MS-LS3-2.3 | DCI-CCC | Use **cause and effect** relationships to connect **sexual** and/or **asexual reproduction** to **genetic variation** in offspring. |
| MS-LS3-2.4 | SEP-CCC | **Develop** and/or **use** a **model** to describe cause and effect relationships. |

**Details and Clarifications**

- **Develop** and/or **use** a **model** is expanded to include:
  - using a given complete or partial model to make predictions and/or describe phenomena
  - using a model to show relationships among variables
  - revising a given complete or partial model
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  - using a model to represent current understanding of a system
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  - offspring receive a set of chromosomes from one parent, with the same number and type of chromosomes as the parent, resulting in minimal genetic variation

## Item 1

Make a model to show how the two alleles are passed to sea star offspring during asexual and sexual reproduction.

Move the alleles onto the offspring to model **all** possible genetic combinations in the offspring.

- Alleles may be used more than once.
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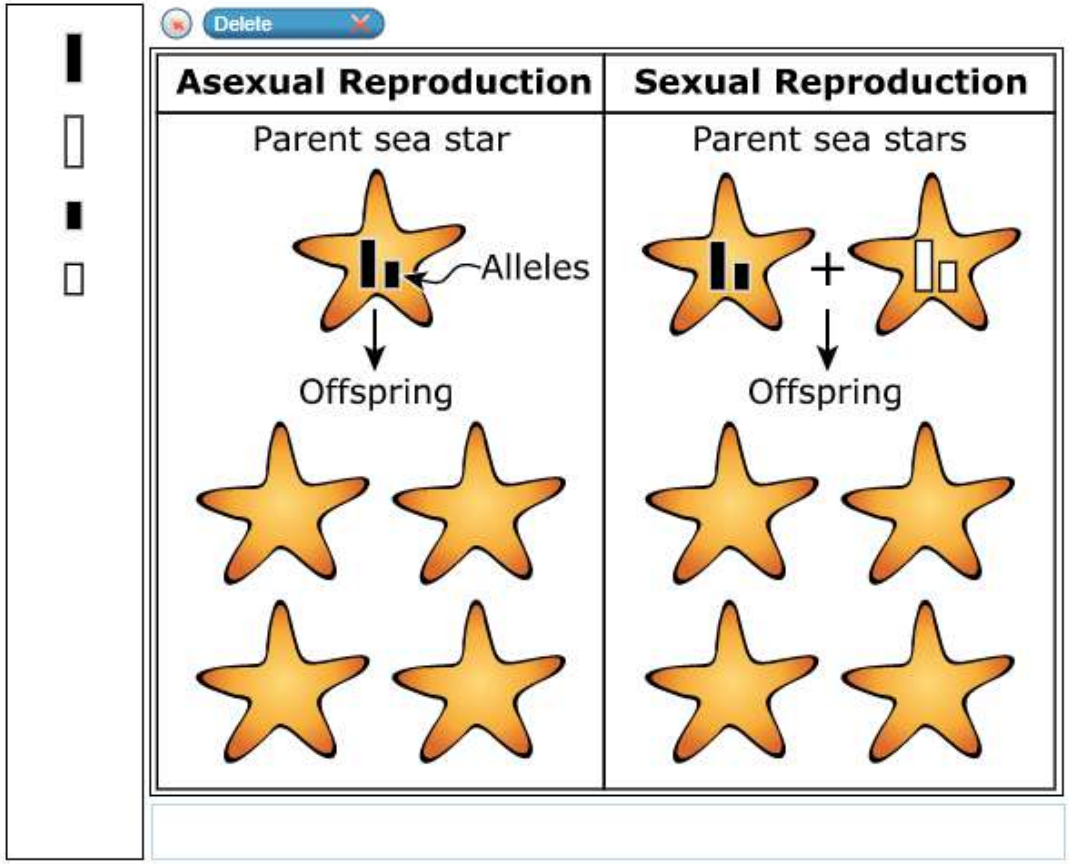
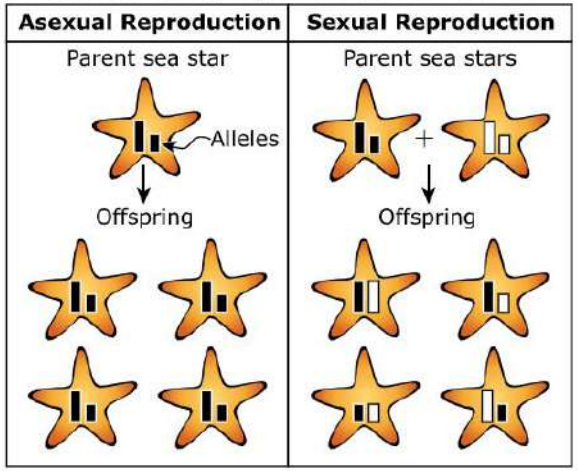


# Item 2

**Section 2—Sea Star Reproduction**

The Sea Star Offspring Allele Combinations model shows the possible allele combinations in the sea star offspring for asexual reproduction and sexual reproduction.

**Sea Star Offspring Allele Combinations**




The following question has two parts. First, answer part A. Then, answer part B.

**Part A**

Based on the Sea Star Offspring Allele Combinations model, select a box to identify whether each statement describes asexual reproduction, sexual reproduction, or both.

| Statement | Asexual Reproduction | Sexual Reproduction | Both |
|---|---|---|---|
| All offspring have the same traits. | ☐ | ☐ | ☐ |
| Genetic information is transferred to the offspring. | ☐ | ☐ | ☐ |
| Different combinations of genetic information in the offspring are possible. | ☐ | ☐ | ☐ |
| Each offspring has two alleles for every trait. | ☐ | ☐ | ☐ |

**Part B**

Which statement describes a reason for the sexual reproduction answers in part A?

Ⓐ The two alleles are identical in every offspring.

Ⓑ Offspring can inherit alleles from either of two parents.

Ⓒ There is a single source of genetic information for all offspring.

Ⓓ The genetic information in offspring depends on their environment.

# Item 2

The following question has two parts. First, answer part A. Then, answer part B.

**Part A**

Based on the Sea Star Offspring Allele Combinations model, select a box to identify whether each statement describes asexual reproduction, sexual reproduction, or both.

| Statement | Asexual Reproduction | Sexual Reproduction | Both |
|---|---|---|---|
| All offspring have the same traits. | ☑ | ☐ | ☐ |
| Genetic information is transferred to the offspring. | ☐ | ☐ | ☑ |
| Different combinations of genetic information in the offspring are possible. | ☐ | ☑ | ☐ |
| Each offspring has two alleles for every trait. | ☐ | ☐ | ☑ |

**Part B**

Which statement describes a reason for the sexual reproduction answers in part A?

Ⓐ The two alleles are identical in every offspring.

Ⓑ Offspring can inherit alleles from either of two parents.

Ⓒ There is a single source of genetic information for all offspring.

Ⓓ The genetic information in offspring depends on their environment.

Items may ask students to:

| Code | Alignment | Item Specification |
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| MS-LS3-2.2 | SEP-DCI | **Develop** and/or **use** a **model** to describe **sexual** and/or **asexual reproduction** and/or **genetic variation** in offspring. |
| MS-LS3-2.3 | DCI-CCC | Use **cause and effect** relationships to connect **sexual** and/or **asexual reproduction** to **genetic variation** in offspring. |
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**Details and Clarifications**

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- **Cause and effect** relationships involving **variation** of **inherited traits** in **asexual reproduction** may include, but are NOT limited to:
  - offspring receive a set of chromosomes from one parent, with the same number and type of chromosomes as the parent, resulting in minimal genetic variation

# Item 2

The following question has two parts. First, answer part A. Then, answer part B.

**Part A**

Based on the Sea Star Offspring Allele Combinations model, select a box to identify whether each statement describes asexual reproduction, sexual reproduction, or both.

| Statement | Asexual Reproduction | Sexual Reproduction | Both |
|---|---|---|---|
| All offspring have the same traits. | ☐ | ☐ | ☐ |
| Genetic information is transferred to the offspring. | ☐ | ☐ | ☐ |
| Different combinations of genetic information in the offspring are possible. | ☐ | ☐ | ☐ |
| Each offspring has two alleles for every trait. | ☐ | ☐ | ☐ |

**Part B**

Which statement describes a reason for the sexual reproduction answers in part A?

Ⓐ The two alleles are identical in every offspring.

Ⓑ Offspring can inherit alleles from either of two parents.

Ⓒ There is a single source of genetic information for all offspring.

Ⓓ The genetic information in offspring depends on their environment.

# MS-LS3-1

Pages 84-85

Front Page

| Performance Expectation | **MS-LS3-1** Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. | | |
|---|---|---|---|
| Dimensions | **Science & Engineering Practices** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| | **Developing and Using Models**<br>Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.<br>• Develop and use a model to describe phenomena. | **LS3.A: Inheritance of Traits**<br>• Genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits.<br><br>**LS3.B: Variation of Traits**<br>• In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism. | **Structure and Function**<br>• Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. |
| These item specifications were developed using the following reference materials: | | | |
| K-12 Framework | pp. 56–59 | pp. 158–159<br>pp. 160–161 | pp. 96–98 |
| NGSS Appendices | Appendix F<br>p. 6 | Appendix E<br>p. 6 | Appendix G<br>pp. 9–10 |
| Clarification Statement | Emphasis is on conceptual understanding that changes in genetic material may result in making different proteins. | | |
| Assessment Boundary | Assessment does not include specific changes at the molecular level, mechanisms for protein synthesis, or specific types of mutations. | | |

# MS-LS3-1

Pages 84-85

Back Page

Items may ask students to:

| Code | Alignment | Item Specification |
|---|---|---|
| MS-LS3-1.1 | SEP-DCI-CCC | **Develop** and/or **use** a **model** to describe how **structural changes** to genes may affect the **structure** and/or **function** of proteins and/or may result in harmful, beneficial, or neutral effects to the **structure** and/or **function** of the organism. |
| MS-LS3-1.2 | SEP-DCI | **Develop** and/or **use** a **model** to show that genes are located on chromosomes and/or to show how information flows from genes to proteins to traits. |
| MS-LS3-1.3 | DCI-CCC | Connect **structural changes** to genes to the **structure** and/or **function** of proteins and/or to the harmful, beneficial, or neutral effects to the **structure** and/or **function** of the organism. |
| MS-LS3-1.4 | SEP-CCC | **Develop** and/or **use** a **model** to describe how complex structures can be analyzed to determine how they function. |

**Details and Clarifications**

- **Develop** and/or **use** a **model** is expanded to include:
  - using a given complete or partial model to make predictions and/or describe phenomena
  - using a model to show relationships among variables
  - revising a given complete or partial model
  - describing the limitations of a complete or partial model
  - using a model to represent current understanding of a system
  - using a model to aid in the development of questions and/or descriptions
- **Models** that show how **structural changes** to genes affect the **structure** and/or **function** of other components may include, but are NOT limited to, a diagram, simulation, or description of:
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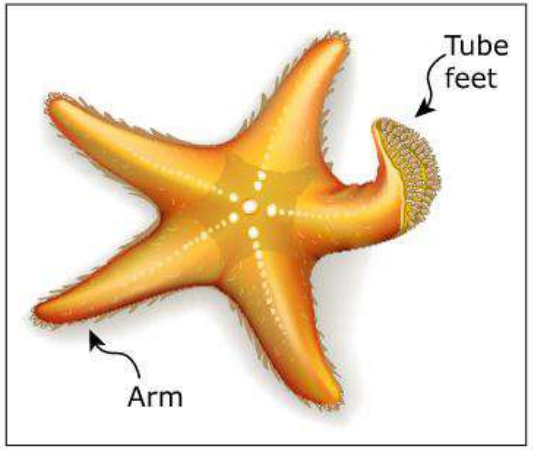
  - a mutation may affect the structure and/or function of a protein
  - a mutation may affect the structure and/or function of an organism in a beneficial, neutral, or harmful way

## Item 3

### Section 3—Sea Star Reproduction

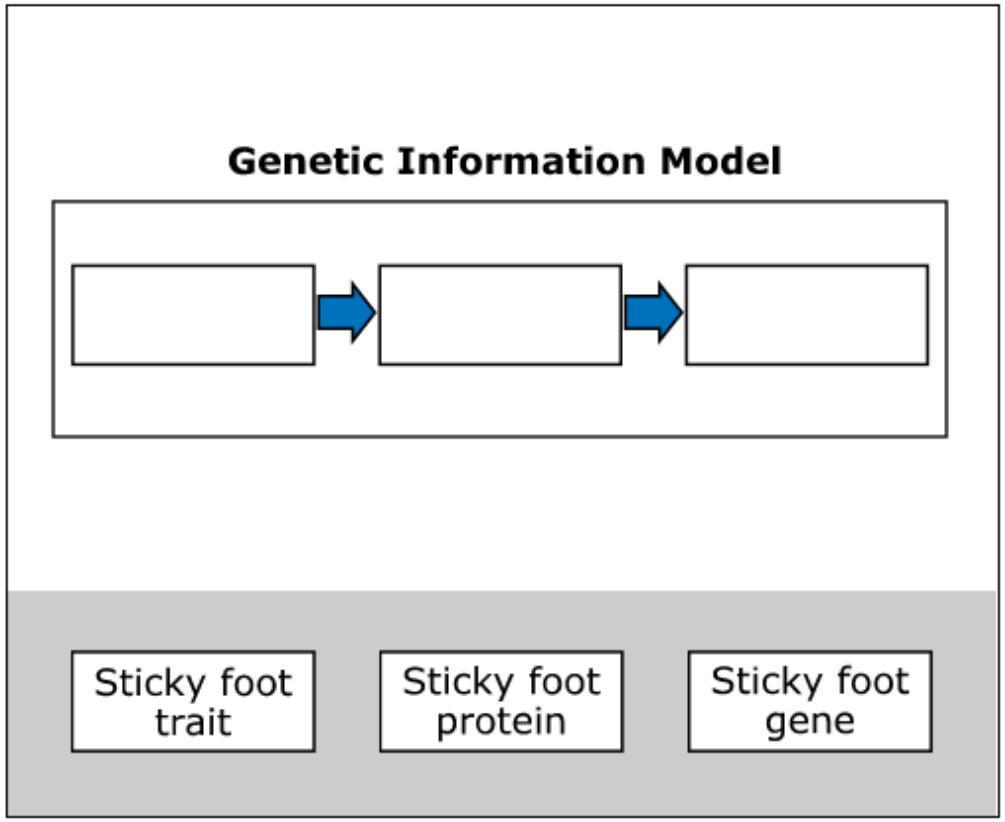
Sea stars have tube feet for walking, climbing, and grasping. The Sea Star External Anatomy diagram shows the appearance and location of tube feet on a sea star.

**Sea Star External Anatomy**

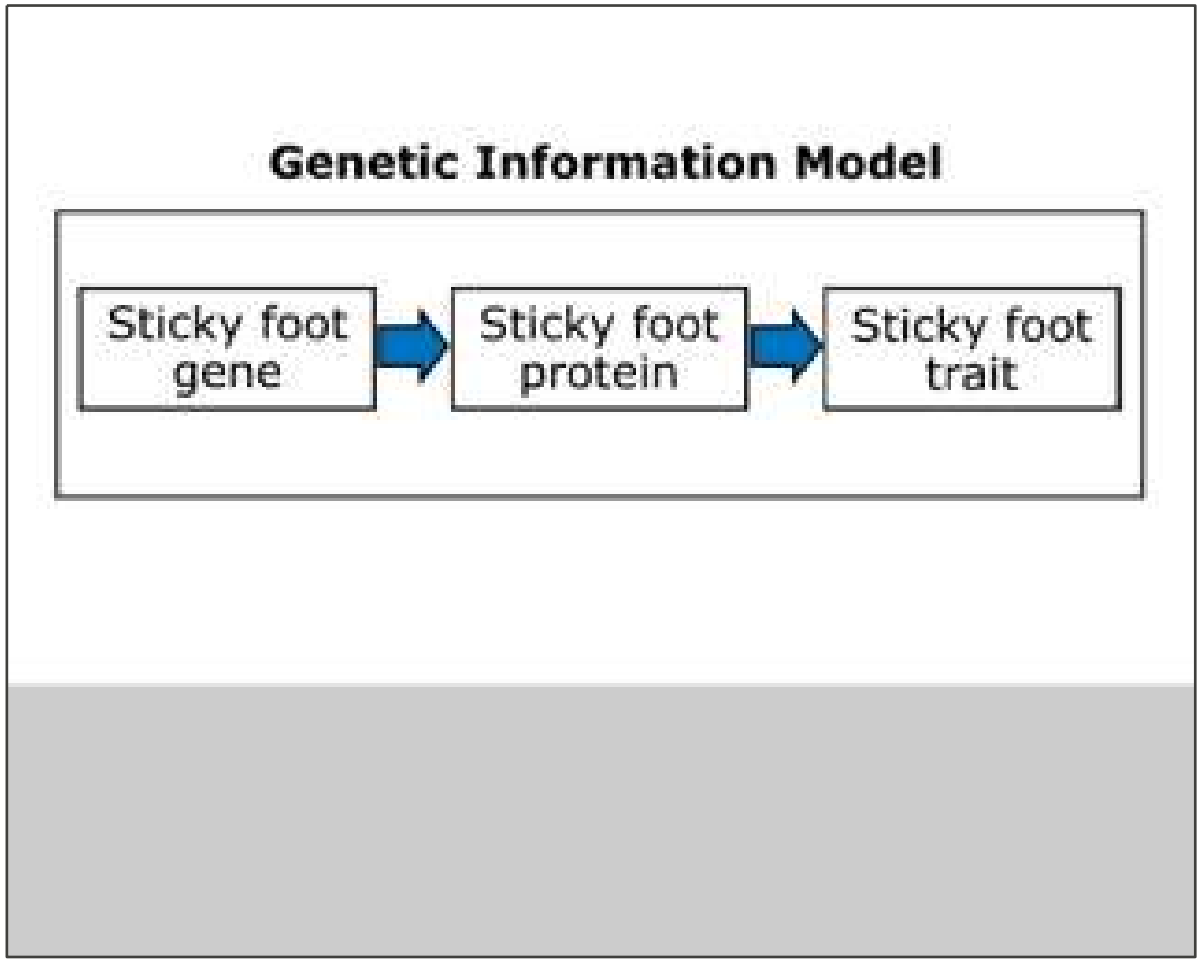



There are cells in the tube feet of sea stars that produce a protein that acts like glue. The protein makes the tube feet sticky.

Move the labels into the boxes to show the flow of genetic information in the tube feet cells.



## Item 3


Genetic Information Model
Sticky foot gene
Sticky foot protein
Sticky foot trait

Items may ask students to:

| Code | Alignment | Item Specification |
|---|---|---|
| MS-LS3-1.1 | SEP-DCI-CCC | **Develop** and/or **use** a **model** to describe how **structural changes** to genes may affect the **structure** and/or **function** of proteins and/or may result in harmful, beneficial, or neutral effects to the **structure** and/or **function** of the organism. |
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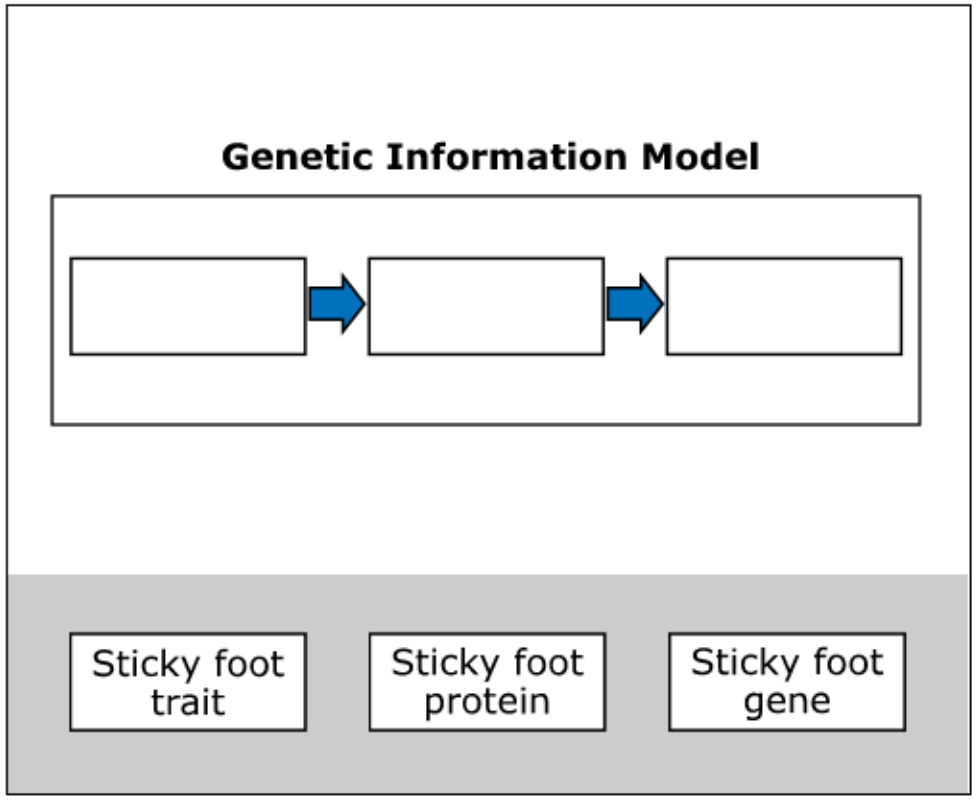
## Item 3

Move the labels into the boxes to show the flow of genetic information in the tube feet cells.



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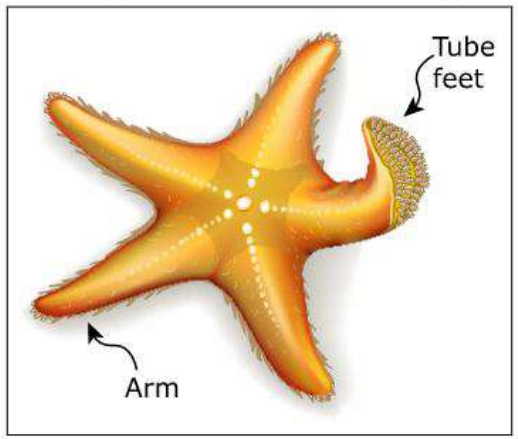
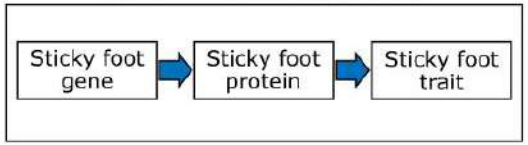



There are cells in the tube feet of sea stars that produce a protein that acts like glue. The protein makes the tube feet sticky.

# Item 4

The Genetic Information Model diagram shows how information in genes results in traits like the sticky foot trait in sea stars.

**Genetic Information Model**




Click each box and select a word to describe how a mutation could result in a change to the sticky foot trait.

A mutation changes the structure of the [ ], which can change the structure and function of the [ ].

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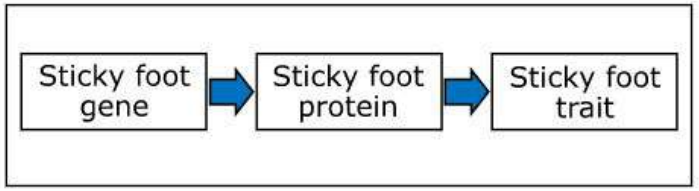
The Genetic Information Model diagram shows how information in genes results in traits like the sticky foot trait in sea stars.

**Genetic Information Model**




Click each box and select a word to describe how a mutation could result in a change to the sticky foot trait.

A mutation changes the structure of the gene, which can change the structure and function of the protein.

Items may ask students to:

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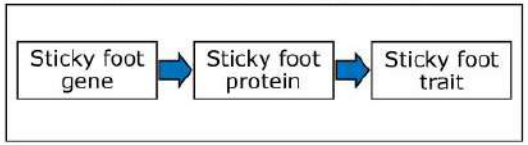


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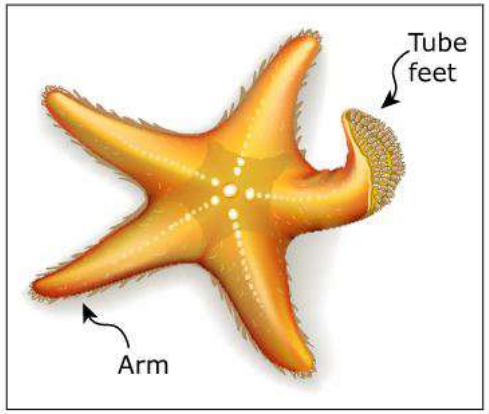


There are cells in the tube feet of sea stars that produce a protein that acts like glue. The protein makes the tube feet sticky.

# Item 5

A mutation occurs that causes the sticky foot protein to become less sticky. Describe how this mutation could affect the sea star.

Choose **one**:

- ○ Harmful mutation
- ○ Beneficial mutation

Describe how **that** mutation could affect the sea star.

## Item 5

A mutation occurs that causes the sticky foot protein to become less sticky. Describe how this mutation could affect the sea star.

Choose **one**:
- Harmful mutation
- Beneficial mutation

Describe how **that** mutation could affect the sea star.

Sample Answers:

*The sea star can't open prey as easily as when the protein was stickier*
OR
*The sea star can be pulled off of rocks by predators more easily.*

A mutation occurs that causes the sticky foot protein to become less sticky. Describe how this mutation could affect the sea star.

Choose **one**:
- Harmful mutation
- Beneficial mutation

Describe how **that** mutation could affect the sea star.

Sample Answers

*The sea star could move more easily to catch prey/avoid predators if its feet don't stick to rocks as much.*
OR
*The mutation is beneficial because less sticky protein means the sea star can move more quickly without getting stuck on objects.*

Items may ask students to:

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## Item 5

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Choose **one**:

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- ○ Beneficial mutation

Describe how **that** mutation could affect the sea star.

# Vocabulary Terms

# Expected SEP, DCI, and CCC Vocabulary

Pages 142-144

## SEP, DCI, and CCC Vocabulary Used in Assessment Items at Grade 8

Items use language targeted to the previous grade level or lower readability with the exception of the required SEP, DCI, and CCC terms in the following list. Appropriate science vocabulary allowed for the grade 5 WCAS may also be used on the grade 8 WCAS. Vocabulary words from Grade 5 are included in the following list.

**a**

Used in grade 5:
advantage
amplitude
angle
attract
axis

Used in grade 8:
absorb
acceleration
adaptation
algae
allele
altitude
analog signal
artificial selection
asexual reproduction

compare
conclusion
conductivity
conserve
constraint
continent
criteria

Used in grade 8:
cell
cell membrane
cell wall
cellular respiration
chemical change
chemical property
chemical reaction
chloroplasts
chromosome

disease
distance

Used in grade 8:
density

**e**

Used in grade 5:
earthquake
ecosystem
effect
electric current
electric force
electrical energy
electricity
electromagnet
energy
engineer

# Q&A


# Reminders & Wrap up

# Where to find the materials

- WCAS Educator Resources Webpage
  https://www.k12.wa.us/student-success/testing/state-testing-overview/washington-comprehensive-assessment-science/wcas-educator-resources
  - Presentation slides with script 1 week out
  - FAQ document with answers to Chat questions 1 week out
  - Webinar recording 2 weeks out
- pdEnroller
  https://www.pdenroller.org/

# Thank You!

Washington Office of Superintendent of

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