

## Differentiated Output Hierarchy

The differentiated output hierarchy is a systematic, organized approach to support student's active engagement in the general education curriculum. The differentiated output hierarchy supports the concepts defined in differentiated instruction. Differentiated instruction is defined as the planning of curriculum and instruction using strategies that address student strengths, interests, skills, and readiness in flexible learning environments "At it's Core....Differentiation is simply high-quality, thoughtful teaching that builds on our best understanding of how students learn and what teachers can do to maximize each student's learning" (The Common Sense of Differentiation, 2005). Tomlinson (2000) suggests that differentiated instruction is a way of thinking about teaching and learning.

Differentiated Instruction has three primary components

- ✔ *Multiple options for taking in information* **Content**
- ✔ *Multiple options for making sense of the ideas* **Process**
- ✔ *Multiple options for expressing what they know* **Product**

"Each section...the Content, Process, and Product must be varied in anticipation of and response to student differences in readiness, interest, and learning needs." (Common Sense of Differentiation, 2005) The differentiated output hierarchy provides a framework for addressing the multiple options for expressing what they know – The Product.

Many students who receive special education supports and services struggle with reading comprehension, written language, organization skills, etc. The hierarchy provides a framework to allow students to show what they know even with these deficits.

### **There are five levels in the differentiated output hierarchy:**

**Open Ended** – Open-ended questions may be the most difficult for students receiving special education services. Many students who have trouble with written language skills or have trouble processing spoken language will not be able to answer open-ended questions as presented in the curriculum. If the student is having trouble with open-ended questions, it is the time to move through the differentiated output hierarchy.

**Visual Organizational Strategies** - Visual strategies should provide the student with a kick-start, which may assist the student in organizing the answer. For example, showing the student how many words or sentences are required to answer a question or complete a paragraph.

**Closed Strategies** - Closed strategies organize the student's output within the curriculum. Closed strategies also narrow the depth of the curriculum and allow the student to utilize recognition skills versus recall skills to output the information.

**Choice Strategies** - Choice strategies provide the student with a visual method to recall the information. Choice strategies should be utilized in a combination with other hierarchy strategies.

**Yes/No Strategies** – Yes/No strategies change the format of an open-ended, multiple choice, etc. type question into a Yes/No format. The yes/no format requires the overlay of other hierarchy strategies. A Yes / No strategy may have to be taught to a student.

START has provided an example of the differentiated output hierarchy at the 3<sup>rd</sup>, 6<sup>th</sup> and 11<sup>th</sup> grades utilizing a single question in the four core curriculum areas: Math, Science, Social Studies and Language Arts..

START also worked in collaboration with a team from Clawson Community Schools: Lisonn Delcamp, Special Education High School Teacher; Jim Kiefer, Algebra Teacher; Dave Starling, History Teacher; and Ryan Sines, Clawson High School Principal to differentiate the first semester of U.S History 10 and the first two chapters of Algebra II.

START would strongly recommend that the U.S. History 10 and Algebra II differentiated output hierarchy be shared with high school teachers.

The following Differentiated Output Hierarchy was made using the following textbook:

Holliday, Lurchin et al. (2008). *Algebra 2*. NY: McGraw Hill.

## **DIFFERENTIATED OUTPUT HIERARCHY (3<sup>RD</sup> GRADE)**

1. Yes / No Strategies
2. Choice Strategies
3. Closed Strategies
4. Visual Organization Strategies
5. **Open Ended Questions**

### **EXAMPLES OF OPEN ENDED QUESTIONS**

#### **Math**

There are 5 blue birds in the cage. There are 5 times as many green birds in another cage. How many green birds are there?

#### **Social Studies**

How are a globe and a dollhouse alike?

#### **Science**

Describe at least two ways Mary can improve her experiment.

#### **Language Arts**

In a story, a character usually faces a problem. For example, a child named Connor wants a pet but is allergic to cat and dog hair. The ending of the story is important. Finish the story in a few sentences.

### **Explanation of Open Ended Questions**

Open-ended questions may be the most difficult for students with ASD. Many students who have trouble with written language skills or have trouble processing spoken language will not be able to answer open-ended questions as presented in the curriculum.

If the student is having trouble with open-ended questions, it is the time to move through the differentiated output hierarchy.

## DIFFERENTIATED OUTPUT HIERARCHY (3RD GRADE)

1. Yes / No Strategies
2. Choice Strategies
3. Closed Strategies
4. **Visual Organization Strategies**

### EXAMPLES OF VISUAL ORGANIZATION STRATEGIES

#### Math

There are 5 blue birds in the cage. There are 5 times as many green birds in another cage. How many green birds are there?

#### Social Studies

How are a globe and a dollhouse alike? A globe and dollhouse are alike because they both \_\_\_\_\_.

#### Science

Mary could improve her experiment by

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

#### Language Arts

Connor wants a pet but is allergic to cat and dog hair.

1. Connor should \_\_\_\_\_
2. This way he \_\_\_\_\_
3. In the end \_\_\_\_\_

## **Explanation of Visual Organization Strategies**

This level should provide the student with a kick-start, which may assist the student in organizing the answer.

Show student how many words or sentences are required to answer a question or complete a paragraph

### **Examples of Visual Organization Strategies**

Directions listed instead of paragraph form

Color coding important information

Utilizing Symbols to connect information needed to solve the problem or answer the question

Highlighting Important Passages

Expand Writing Output Area with Bold Pen

Highlighting Process + - x, etc

## DIFFERENTIATED OUTPUT HIERARCHY (3RD GRADE)

1. Yes / No Strategies
2. Choice Strategies
3. **Closed Strategies**

### EXAMPLES OF CLOSED STRATEGIES

#### Math

There are  $\boxed{5}$  blue birds in the cage. There are  $\triangle 5$  times as many green birds in another cage. How many green birds are there?

$$\square \times \triangle = \text{green birds}$$

#### Social Studies

A globe and dollhouse are alike because they are a \_\_\_\_\_ of the real thing.

#### Science

Mary needs to be sure all the pieces of the cloth are \_\_\_\_\_.

#### Language Arts

Connor is allergic to dog and cat hair. A pet he might not be allergic to is a \_\_\_\_\_.

## **Explanation of Closed Strategies**

Closed strategies organize the student's output within the curriculum.

Closed strategies narrow the depth of the curriculum.

Closed strategies allow the student to utilize recognition skills versus recall skills to output the information.

### **Some Examples of Closed Strategies:**

Fill in the Blank

Page of number of reference

Symbols – Box/box....triangle/triangle

Highlighting formula + - x, etc

Word Bank

Highlighter Tape

Context Clues

Give formula with symbols

## DIFFERENTIATED OUTPUT HIERARCHY (3RD GRADE)

1. Yes / No Strategies
2. Choice Strategies

### EXAMPLES OF CHOICE STRATEGIES

#### Math

$$5 \times 5 = \underline{\quad}$$

20            25            30

#### Social Studies

A globe and a dollhouse are alike because they are both \_\_\_\_\_ of the real thing

models

newspapers

copies

#### Science

Circle one way Mary could improve her experiment

Pieces of cloth need to be the same size

Use more clothing made by Girbau

#### Language Arts

What might be a good pet for Connor?

Bird

Puppy



## **Explanation of Choice Strategies**

Choice strategies provide the student with a visual method to recall the information.

Closed strategies should be utilized in a combination of other hierarchy strategies

### **Examples of Choice Strategies**

|  |                                  |
|--|----------------------------------|
| Color coding a word bank - two choices | Pick between two instead of four |
| Blocking out choices                   | Color matching multiple choice   |
| Pictures of the two choices            | 2 choices in sentence form       |

**DIFFERENTIATED OUTPUT HIERARCHY  
(3RD GRADE)**

**1 Yes / No Strategies**

**EXAMPLES OF YES/NO STRATEGIES**

**Math**

$$5 \times 5 = 20$$

Yes                  No

**Social Studies**

Are a globe and dollhouse both models of the real thing?

Yes                  No

**Science**

If Mary wanted to improve her experiment, she could make sure the pieces of cloth were the same size.

Yes                  No

**Language Arts**

Is a bird possibly a good pet for Connor?

Yes                  No

## **Explanation of Yes / No strategies**

Change the format of the question into Yes/No

Overlay other hierarchy strategies

A Yes / No strategy may have to be taught to a student

The staff person must systematically provide the Yes / No strategy to the student.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Science – Reflective Questions Assessment**  
Student Sheet

1. Mary wanted to find out what kind of cloth dries out the fastest after it gets wet. She got a cotton scarf, a wool mitten, and a nylon shirt. She poured some water on all three and then put them out to dry. The next day she felt the three pieces of clothing and they felt dry. She concluded that all kinds of cloth dry at the same rate.

Leslie thought Mary's experiment did not prove that all kinds of material dry at the same rate. Describe **at least two ways** Mary could improve her experiment.

- A. She needs to be sure all the pieces of cloth are the same size.
- B. She needs to use the same amount of water to wet each cloth.
- C. She needs to make observations more often to determine which dried first.

## **DIFFERENTIATED OUTPUT HIERARCHY (6<sup>th</sup> GRADE)**

1. Yes / No Strategies
2. Choice Strategies
3. Closed Strategies
4. Visual Organization Strategies
5. **Open Ended Questions**

### **EXAMPLES OF OPEN ENDED QUESTIONS**

#### **Math**

Hector recorded the scores for 2 of his Marco Polo games. He scored 15,988 points on the first game and 13, 539 points on the second game. How many more points did Hector score in the first game than in the second?

#### **Social Studies**

What are the principles stated in the preamble to the U.S. Constitution?

#### **Science**

Name the different stages of the Water Cycle.

#### **Language Arts**

I love bats. They are such wonderful animals. There are many different kinds of bats. One kind of bat is the fruit bat. Fruit bats have cute faces. They sleep in trees. Most bats are nocturnal. That means they sleep during the day. They hunt for insects at night. Farmers like bats. Bats eat thousands of insects every night. That means that there aren't as many insects to destroy crops.

Explain what this story was about in your own words.

## **Explanation of Open Ended Questions**

Open-ended questions may be the most difficult for students with ASD. Many students who have trouble with written language skills or have trouble processing spoken language will not be able to answer open-ended questions as presented in the curriculum.

If the student is having trouble with open-ended questions, that is the time to move through the differentiated output hierarchy.

## DIFFERENTIATED OUTPUT HIERARCHY (6<sup>th</sup> GRADE)

1. Yes / No Strategies
2. Choice Strategies
3. Closed Strategies
4. **Visual Organization Strategies**

### EXAMPLES OF VISUAL ORGANIZATION STRATEGIES

#### Math

Hector recorded the scores for 2 of his Marco Polo games. He scored 15,988 points on the first game and 13,539 points on the second game. How many **MORE** points did Hector score in the first game than in the second? Subtract score two from score one

#### Social Studies

What are the **SIX** principles stated in the preamble to the U.S. Constitution?

#### Science

Name the **FOUR** different stages of the Water Cycle.

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_

#### Language Art

There are many different kinds of bats. Bats sleep in the day and **hunt for insects at night**. **Bats help farmers by eating the insects that destroy crops.**

**What do bat do at night?**

**Why do farmers like bats?**

## **Explanation of Visual Organization Strategies**

This level should provide the student with a kick-start, which may assist the student in organizing the answer.

Show student how many words or sentences are required to answer a question or complete a paragraph

## **Examples of Visual Organization Strategies**

Directions listed instead of paragraph form

Color coding important information

Utilizing Symbols to connect information needed to solve the problem or answer the question

Highlighting Important Passages

Expand Writing Output Area with Bold Pen

Highlighting Process + - x, etc



## DIFFERENTIATED OUTPUT HIERARCHY (6<sup>th</sup> GRADE)

1. Yes / No Strategies
2. Choice Strategies
3. **Closed Strategies**

### EXAMPLES OF CLOSED STRATEGIES

#### Math

Hector recorded the scores for 2 of his Marco Polo games. He scored 15,998 points on the first game and 13,539 points on the second game. How many more (-) points did Hector score in the First game than in the Second game?

$$\text{Yellow} - \text{Green} = \underline{\hspace{2cm}}$$

#### Social Studies

Pick 6 of the 8 Statements

1. to form a more perfect union
2. establish justice
3. ensure domestic tranquility
4. guarantee the peoples' rights
5. provide for the common defense
6. promote the general welfare
7. secure the blessings of liberty
8. have freedom of speech

## Science

Name the four (4) stages of the Water Cycle.

### Word Bank

Evaporation

Oxygenation

Transpiration

Precipitation

Condensation

Hydrogenation

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

4) \_\_\_\_\_

## Language Arts

Bats sleep in the day and hunt for insects at \_\_\_\_\_. Bats help farmers by eating \_\_\_\_\_ that destroy crops.

Night

insects

day

leaves

## Explanation of Closed Strategies

Closed strategies organize the student's output within the curriculum.

Closed strategies narrow the depth of the curriculum.

Closed strategies allow the student to use recognition skills versus recall skills to output the information.

### Some Examples of Closed Strategies:

Fill in the Blank

Page of number of reference

Symbols – Box/box....triangle/triangle

Highlighting formula + - x, etc

Word Bank

Highlighter Tape

Context Clues

Give formula with symbols

**DIFFERENTIATED OUTPUT HIERARCHY  
(6<sup>th</sup> GRADE)**

1. Yes / No Strategies
2. Choice Strategies

**EXAMPLES OF CHOICE STRATEGIES**

**Math**

Hector scored how many more points in the first game than in the second game?

Circle the correct answer

$$\begin{array}{r} 15,968 \\ -13,539 \\ \hline \end{array}$$

2,429

1,267

**Social Studies**

Please circle a principle stated in the preamble to the U.S. Constitution?

ensure domestic tranquility

provide for the common defense

**Science**

Name the four (4) stages of the Water Cycle.

The process by which liquid water changes to water vapor is:

compassion

evaporation

The process by which water vapor changes to liquid water is called:

oxygenation

condensation

The process by which water is released through leaves is called:

transpiration

transportation

The process by which water returns to the earth is called:

hydrogenation

precipitation

## Language Arts

Bats sleep in the day and hunt for insects at night. Bats help farmers by eating the insects that destroy crops.

What do bats do at night?

Hunt insects

Sleep

Eat crops

## Explanation of Choice Strategies

Choice strategies provide the student with a visual method to recall the information.

Closed strategies should be utilized in a combination of other hierarchy strategies

### Examples of Choice Strategies

Color coding a word bank - two choices

Pick between two instead of four

Blocking out choices

Color matching multiple choice

Pictures of the two choices

2 choices in sentence format

**DIFFERENTIATED OUTPUT HIERARCHY  
(6<sup>th</sup> GRADE)**

**1 Yes / No Strategies**

**EXAMPLES OF YES/NO STRATEGIES**

**Math**

$$\begin{array}{r} 15,986 \\ -13,539 \\ \hline 2,429 \end{array}$$

YES

NO

**Social Studies**

Are there four principles stated in the preamble to the United States Constitution?

YES

NO

**Science**

Name the four (4) stages of the Water Cycle.

The process by which liquid water changes to water vapor is evaporation.

YES

NO

The process by which water vapor changes to liquid water is called oxygenation.

YES

NO

The process by which water is released through leaves is called transportation.

YES

NO

The process by which water returns to the earth is called precipitation.

YES

NO

**Language Arts**

Bats sleep at night.

YES

NO

Bats help farmers by eating insects.

YES

NO

**Explanation of Yes / No strategies**

Change the format of the question into Yes/No

Overlay other hierarchy strategies

A Yes / No strategy may have to be taught to a student

The staff person must systematically provide the Yes / No strategy to the student.

## **DIFFERENTIATED OUTPUT HIERARCHY (11<sup>th</sup> GRADE)**

1. Yes / No Strategies
2. Choice Strategies
3. Closed Strategies
4. Visual Organization Strategies
5. **Open Ended Questions**

### **EXAMPLES OF OPEN ENDED QUESTIONS**

#### **Math**

Write the ratio 11:88 as a percent.

#### **Social Studies**

Explain the evidence that supports the continental drift theory.

#### **Science**

Define estivation and give three examples of animals that estivate.

#### **Language Arts**

Choose a person whom you admire. Select an incident in the person's life that portrays the qualities you most associate with that person. The incident may be one in which the person overcame an obstacle.

### **Explanation of Open Ended Questions**

The open-ended questions may be the most difficult for students with ASD. Many students who have trouble with written language skills or have trouble processing spoken language will not be able to answer open-ended questions as presented in the curriculum.

If the student is having trouble with open-ended questions, it is the time to move through the differentiated output hierarchy.

**DIFFERENTIATED OUTPUT HIERARCHY  
(11<sup>th</sup> GRADE)**

1. Yes / No Strategies
2. Choice Strategies
3. Closed Strategies
4. **Visual Organization Strategies**

**EXAMPLES OF VISUAL ORGANIZATION STRATEGIES**

**Math**

11:88 ratio is = \_\_\_\_\_%

**Social Studies**

Name 2 pieces of information that support the continental drift theory.

---

---

**Science**

List three animals that estivate in the summer

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Language Arts**

I. Persons you admire

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

II. Qualities You most admire in a person

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_



III. Obstacles the person has run into

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

## **Explanation of Visual Organization Strategies**

The Visual Organization level should provide the student with a kick-start, which may assist the student in organizing the answer.

Show student how many words or sentences are required to answer a question or complete a paragraph

### **Examples of Visual Organization Strategies**

Directions listed instead of paragraph form

Color coding important information

Utilizing Symbols to connect information needed to solve the problem or answer the question

Highlighting Important Passages

Expand Writing Output Area with Bold Pen

Highlighting Process + - x, etc

**DIFFERENTIATED OUTPUT HIERARCHY  
(11<sup>th</sup> GRADE)**

1. Yes / No Strategies
2. Choice Strategies
3. **Closed Strategies**

**EXAMPLES OF CLOSED STRATEGIES**

**Math**

$$\frac{11}{88} = \frac{n}{100}$$

$$88n = 11 \times 100$$

$$88n = \underline{\hspace{2cm}}$$

$$n = \frac{\underline{\hspace{2cm}}}{88}$$

$$n =$$

**Social Studies**

2 pieces of evidence that support the continental drift theory are \_\_\_\_\_  
and \_\_\_\_\_ in \_\_\_\_\_ and \_\_\_\_\_.

**Science**

The dormant condition of animals in the summer is \_\_\_\_\_.

**Language Arts**

I. Person you admire

- A. A person I admire who is a rock star is \_\_\_\_\_
- B. A person I admire who is a teacher is \_\_\_\_\_
- C. A person I admire who is a T.V. star is \_\_\_\_\_

(Choose one person by circling)

II. Qualities you most admire in a person

- A. Tim Allen is \_\_\_\_\_.
- B. Tim Allen is \_\_\_\_\_.
- C. Tim Allen is \_\_\_\_\_.

III. Obstacles that Tim Allen has run into

- A. Tim Allen overcame \_\_\_\_\_.
- B. Tim Allen overcame \_\_\_\_\_.
- C. Tim Allen overcame \_\_\_\_\_.

### Explanation of Closed Strategies

Closed strategies organize the student's output within the curriculum.  
Closed strategies narrow the depth of the curriculum

Closed strategies allow the student to use recognition skills versus recall skills to output the information.

#### Some Examples of Closed Strategies:

Fill in the Blank

Page of number of reference

Symbols – Box/box....triangle/triangle

Highlighting formula + - x, etc

Word Bank

Highlighter Tape

Context Clues

Give formula with symbols

**DIFFERENTIATED OUTPUT HIERARCHY  
(11<sup>th</sup> GRADE)**

1. Yes / No Strategies
2. **Choice Strategies**

**EXAMPLES OF CHOICE STRATEGIES**

**Math**

$$88n = 11 \times 100$$

$$88n = 1,100$$

$$n = 1,100 / 88$$

$$n = \underline{\hspace{2cm}}\%$$

$$n = 20\%$$

$$n = 12.5\%$$

$$n = 8\%$$

**Social Studies**

Circle 2 pieces of evidence to support the continental drift theory.

Fossils in North America

Rocks in South America

Fossils in South America

Rocks in North America

**Science**

The dormant condition of certain animals in the summer

Estivation

Hibernation

**Language Arts**

I. Person you admire

Tim Allen

Ellen Dengeneres

II. Qualities you most admire in a person

- A. A quality I admire in Tim Allen is:
  - a. He makes me laugh                      He is too serious
  
- B. Another quality I look up to is:
  - a. Tim Allen has acted in many different roles
  - b. He has only acted on a T.V. series
  
- C. A quality I really like about Tim Allen is:
  - a. He has spent his money wisely
  - b. Tim has earned a great deal of money

III. Obstacles that Tim Allen has run into

- A. Tim Allen had trouble in his life prior to becoming really popular:
  - He dropped out of school                      He went to jail
  
- B. A hurdle that Tim Allen has had to overcome is:
  - His involvement with drugs              His family problems

IV. Another obstacle that he has been able to work through has been:  
Starting off his career as a comedian and transitioning into other roles

Working as a movie star before becoming a TV celebrity

### **Explanation of Choice Strategies**

Choice strategies provide the student with a visual method to recall the information.

Closed strategies should be utilized in a combination of other hierarchy strategies

### **Examples of Choice Strategies**

|  |                                  |
|--|----------------------------------|
| Color coding a word bank - two choices | Pick between two instead of four |
| Blocking out choices                   | Color matching multiple choice   |
| Pictures of the two choices            | 2 choices in sentence format     |

**DIFFERENTIATED OUTPUT HIERARCHY  
(11<sup>th</sup> GRADE)**

**1 Yes / No Strategies**

**EXAMPLES OF YES/NO STRATEGIES**

**Math**

n = 1,100 / 88

n = 12.5%

Yes                  No

**Social Studies**

Are rocks and fossils found in South America and Africa evidence that supports the continental theory?

Yes                  No

**Science**

Is the dormant condition of certain animals in the summer called estivation?

Yes                  No

**Language Arts**

I.     Persons you admire  
          Do you admire Tim Allen?  
          Yes                  No

II.    Qualities you most admire in a person is  
      A. Tim Allen a comedian?  
          Yes                  No

      B. Has he been able to perform a variety of roles?  
          Yes                  No

- C. Has Tim Allen had personal problems that he has coped with?  
Yes                      No
  
- D. Does he make a lot of money?  
Yes                      No
  
- II. Obstacles the person has run into
  - A. Did Tim Allen go to jail?  
Yes                      No
  
  - B. Did he start his career as a comedian?  
Yes                      No
  
  - C. Is he currently on the sitcom "Ellen"  
Yes                      No

### **Explanation of Yes / No strategies**

Change the format of the question into Yes/No

Overlay other hierarchy strategies

A Yes / No strategy may have to be taught to a student

The staff person must systematically provide the Yes / No strategy to the student.