Constructive Chaos
Using Flexible Grouping In Middle And High School To Meet The Needs Of Every Student

Gilda Lyon
Howard School of Academics & Technology

U.S. Department of Education • Teacher to Teacher Initiative • Supporting Success
Outcomes for Session

• Understand a mechanism for successfully differentiating any science class.

• Recognize the various ways to differentiate the science classroom.

• Create a framework for differentiating your own class.
Relevant Research

Evidence of Success

- Taught chemistry since 1993.
- Taught traditional pedagogy until 1997.
- 20% failure rate.
- Began using flexible grouping to differentiate in 1998.
- In those six years, 4.6% failure rate. 40/860 students.
- Students are required to take chemistry to graduate from high school in Hamilton County.
Flexible Grouping Model

Assess

Re-Teach
Re-Group
Fail

New Teachings
Re-Group
Pass

U.S. Department of Education • Teacher to Teacher Initiative • Supporting Success
Student Motivation

• No one is allowed to fail.
• If students are absent they are not hurt.
• Teacher does not have to grade homework.
• You always get homework.
• Students do not cheat.
• Students become motivated because there is always hope and they experience success.
• Works well in heterogeneous classes.
How To Begin

• Use data
  – Teach normally for the 1st unit.
  – Students who do not pass, do not continue on to the next unit.

• Differentiate through flexible groups.
  – Group students who passed into smaller groups together.
  – Group students who have not passed yet into smaller groups based on where their difficulties lie.
Flexible Grouping

• Have assignments/activities ready for the groups who passed.

• Have re-teaching assignments/activities ready for the groups who did not pass.

Example: If the 1st unit was on measurement and 18/30 students passed.

The 18 that passed could be placed into 5 groups of 3 or 4.

The 12 who did not pass could be placed into 3 groups of 4.
Flexible Grouping

• The “passed” group moves on to the next unit.

• The “not passed yet” group, is re-taught by the teacher and allowed to re-test.

• Once the “not passed yet” group passes, they are re-grouped in with the other students (flexible grouping).
New Instruction

• Everyone is introduced to new material.
• My philosophy on this.
• After new material is taught, students are split into their flexible groups to work.
Put Units on Wall

Ionic Bonding (New unit)
1. Pre-assessment on atomic theory.
3. Lab on bonding.
4. Lab report due on lab.
5. Quiz #1
6. Using the plastic models, show bonding ratios of the atoms listed on the board.
7. Tic Tac Toe Board
8. Written test.

Measurement (Old unit)
1. Measure the items located on the stations lab. (Teacher re-teaches difficult/problem areas). Students self-check answers.
2. Take quiz for understanding.
3. If students pass quiz, re-take a different test over the same material.
Managing the Groups

• Students are re-grouped daily. Sometimes they are back with the same group and sometimes they are with different people.

• Groups are determined based upon where they are in the unit.

• List names of students on a large sign and where they are to sit prior to the start of class.
## Grouping Chart

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Table 2</th>
<th>Table 3</th>
<th>Table 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>Sue</td>
<td>Calvin</td>
<td>Kelvin</td>
</tr>
<tr>
<td>Mary</td>
<td>Kanesha</td>
<td>Tommy</td>
<td>Elvira</td>
</tr>
<tr>
<td>Tony</td>
<td>Antonio</td>
<td>Avery</td>
<td>Dean</td>
</tr>
<tr>
<td>Melvin</td>
<td>Janie</td>
<td>Adam</td>
<td>Rhonda</td>
</tr>
</tbody>
</table>

This chart changes daily. Hang it on the wall.
Grouping Students

Ionic Bonding
1. Pre-assessment on atomic theory.
3. Lab on bonding.
4. Lab report due on lab.
5. Quiz #1
6. Using the plastic models, show bonding ratios of the atoms listed on the board. Each model must be checked off by teacher.

For example, all students working on #2 are together and all on #6 are working together.
Instruction

• Teach new material to the fastest moving groups.

• This may be done whole group where everyone listens and does activities together, or may be done in small groups based upon student needs.

• After new material is introduced, students may pick up in their groups and continue working.
Grading

• Grade as you normally would.

• When students have not completed assignments, do not put a grade in the grade book for them.

• Once the assignment or assessment has been completed, a grade may be entered.

• I only grade what students show me they KNOW and what they can DO!

• Show them their grades daily.
Grading

• Variety of papers to grade nightly.
• Easy to get papers graded & returned quickly.
• Must keep tests and quizzes after going over them.
• Create multiple tests/assessments.
Grading

• Re-test grade is what student makes.
• The object is to learn.
• Only failures may re-take.
• Debatable philosophy.
Homework

• I do not grade most homework.
• Answers are posted on the wall & students self-reflect.
• Homework should be about practice and checking for understanding.
• Homework and all other activities must be completed before students can test.
Planning

• Huge up-front planning required.
• All units must be thought through carefully.
• Think backwards using essential questions.
• Write your objectives for the unit, then determine how you will assess them.
• Plan your teaching strategies, assignments & activities to assure students learn.
Planning

• Have all materials ready for any new unit prepared before students begin.

• Prepare labs that can be set up at stations and can be done safely in class.

• For dangerous or difficult labs, allow the entire class to go to lab together regardless of where any particular student is.

• Re-stock daily.
Testing in Class

• When students feel ready to test out of a unit, they let me know & I move them to a testing table.

• All activities in the unit must be completed prior to testing.

• 100% homework.

• 100% lab reports.
Testing In Class

• When administering written tests or quizzes create testing tables or testing areas.
• The only students who are sitting at testing tables/areas are those taking an assessment.
• I have students put a “board” in front of them so I do not forget they are testing.
• If you can give students feedback immediately in class, do it.
Lab Reports

• All labs require a lab report.
• All lab reports must be re-written until students get at least a “B”.
• Once I have found 3 mistakes on a report, I stop grading and return it for a re-write.
Managing the Chaos

• You may have as many as six different activities occurring at any one time.

• As the teacher, you must command control of the class.

• Keep your ears/eyes attuned to the entire class at all times.

• If you hear off-task conversations, you must address it immediately.

• Let students know “all conversations must be about science”.

U.S. Department of Education • Teacher to Teacher Initiative • Supporting Success
Managing the Chaos

• Wean students away from depending upon you for everything. (Ask 3 before you ask me)

• When you can not get to a table to help a student, you have “experts” all around you in the form of students who have passed those units.

• Take advantage of Vygotsky’s zone of proximal development.
Teacher’s Role

• Introduce new material using engaging strategies.

• After new material, students begin to work at their specific tasks.

• Teacher as coach.

• You are free to sit at individual tables and help students.

• Students will ask you questions at a table who would never speak up in front of the class.
Attendance

• When students are absent, it does not matter.
• They pick up where they left off.
• If they are too far behind, they **must** spend some extra time with the teacher.
• In urban schools, attendance & keeping up is an issue.
Contacts

• lyon_gilda@hcde.org
**Implementation Activities**

Practice the Model

- Give audience an assessment on measurement.
- Everyone who passes it will move to specified locations.
- Everyone who fails it will move to other locations.
- The passing group & failing group will be taught new material.
- After the instruction, the passing group works on their own following the unit objectives.
Implementation Activities

• I re-teach the failed group & they re-test.
• If they pass, they are re-grouped with the other students.
• Practice is conducted and the “audience” checks their own work on the wall.
• When they are ready to test, they let me know.
Flexible Grouping Model

Assess

Re-Teach
Re-Group
Fail

New Teachings
Pass
Re-Group

U.S. Department of Education • Teacher to Teacher Initiative • Supporting Success