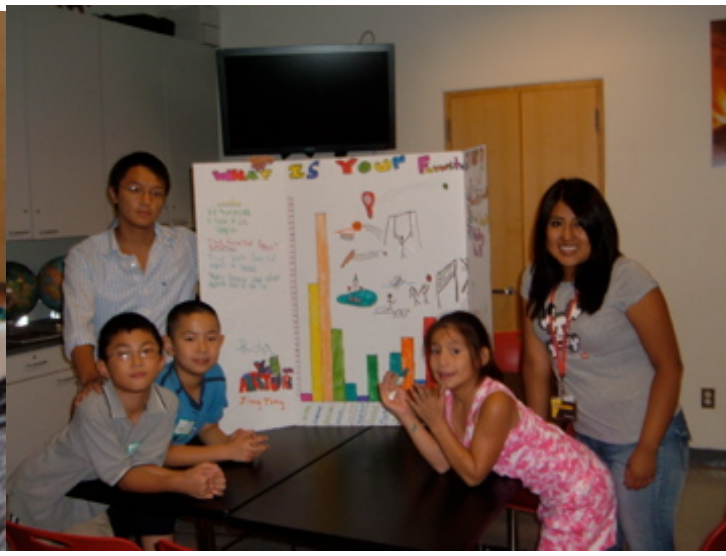
After-School Inclusive Math Evaluation Report: A Case Study



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After-School Inclusive Math

Evaluation Report: A Case Study

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Introduction

After-School Inclusive Math (AIM), developed by the Educational Equity Center at AED, is a partnership between inclusive after-school programs and science/technology museums. AIM's goal is to give youth with and without disabilities unique opportunities to work together on real-world, inquiry-based math activities that meet national standards. Activities are designed to be engaging and fun, and to ensure that young people with disabilities have the opportunity to interact and communicate with peers and participate in teamwork exercises. Each math activity has modifications that make it accessible for young people with a broad range of physical, sensory, cognitive and social/emotional disabilities.

By working together to creatively solve problems and develop solutions, youth with and without disabilities experience the following best practices of inclusion (Easter Seals, 2007): they are fully engaged, they each have a role and are valued for their contribution, they are encouraged to participate to their maximum abilities; they each have opportunities for high quality experiences; and peer relationships are encouraged to develop naturally.

AIM responds to the needs of young people with disabilities who are widely underserved and undereducated in the critical areas of science, technology, engineering and mathematics (STEM) beginning at the earliest level of education. (AAAS, 2001; Hammrich, Price, and Nourse, 2001; U.S. Department of Education, 2001; Rivera,1997; Shewey 1997; Stefanich & Dodd, 1994; Mastopieri, Scruggs & Shiah, 1991). Despite their capabilities, these students do not pursue careers in math and science at the same rate as their peers, as illustrated by the fact that only 5.5 percent of employed scientists and engineers are individuals with disabilities (NSF, 2007). AIM is designed to address these issues by fostering inclusion.

Afterschool Inclusive Math (AIM) builds on EEC's After-School Math PLUS (ASM+) program. In this partnership between inclusive afterschool programs and science/technology museums, youth with and without disabilities work together on real-world, inquiry-based math activities that meet the national standards. The ASM+ curriculum, developed in collaboration with the New York Hall of Science and the St Louis Science Center includes fun, inquiry-based activities that build essential math skills and concepts. The activities are grouped in to four thematic units: Jump Rope Math, the Built Environment, ArtMath and MusicMath.

The AIM implementation at CPC focused on Jump Rope Math, the unit that is suggested as an introduction to the program. In this unit, students collect and graph data about jumping rope in various forms starting with simple bar graphs and progressing to line graphs, Venn Diagrams, and scatter graphs. Students also conduct surveys, plot their data, and design their own mathematics investigation. While they are jumping rope, testing various types of rope, measuring distances, and charting improvements over time, students are also engaging in physical activity. As in all ASM+

units, Jump Rope Math includes role model and career connections and a family letter available in English, Spanish, and Chinese.

This report focuses on the implementation of AIM at an after-school program. Throughout this report, quotes from observation field notes are used to illustrate examples of the implementation as well as staff and students' reactions to the AIM program. The report is organized into four sections. Section one describes implementation of AIM. Section two describes the evaluation activities. In section three, the evaluation findings are summarized. The final section is the summary and conclusion.

I. AIM Implementation at CPC at PS 20

During the summer of 2008, After-school Inclusive Math (AIM) was implemented at the Chinese-American Planning Council (CPC) after-school program at PS 20 in Flushing, NY. The museum partner for AIM was the New York Hall of Science, New York City's major hands-on science and technology center, also located in Flushing, NY.

At CPC at PS 20, AIM was implemented in a class of eighteen 4th and 5th graders. In this class, eight students had been classified as having disabilities; five with emotional disabilities and three with learning disabilities. Two elementary school teachers, assisted by five high school group leaders, led the AIM implementation and carried out the Jump Rope Theme activities of the After-School Math PLUS curriculum. These teachers also attended three sessions at the New York Hall of Science (NYHS) where they worked with a science instructor and four teen museum explainers.

II. Evaluation

Methods

The evaluation data were collected from CPC at PS 20 during the summer of 2008 using this site as a case study. The evaluation was conducted by a team from the Center for School and Community Services at the Academy for Educational Development (AED). An inclusion curriculum consultant also observed several classes to provide technical assistance to staff and provide observation data to the AED evaluation team using the observation protocol (Appendix 1). This evaluation involved a total of eight observations of AIM sessions, six at CPC at PS 20 and two at the NYHS. Two teachers at CPC at PS 20 and the science instructor and four explainers at NYHS were also asked to fill out activity feedback forms as well as a post survey at the end of the project. We received a total of 17 activity feedback forms across all staff and two post surveys, one from a teacher at CPC and one from the science instructor at the NYHS. Additionally, two student focus groups were conducted at CPC at PS 20. Each focus group consisted of six students with a mix of both students with and without disabilities.

Evaluation Questions

The primary research question guiding the AIM evaluation was: Did the AIM program foster inclusion? All of the other research questions revolved around this major question:

- To what extent were students (with and without disabilities) engaged in the activities?
- Did students with disabilities have a role in the activities? Were their contributions valued?
- To what extent were all students encouraged to participate?
- What provisions/modifications were made for students with special needs?
- Did all the students appear to understand the math content emphasized during the activity?

The AIM evaluation assessed inclusion as it is defined by the Easter Seals: students are fully engaged, they each have a role and are valued for their contribution, they are encouraged to participate to their maximum abilities; they each have opportunities for high quality experiences; and peer relationships are encouraged to develop naturally.

III. Evaluation Findings

The next section summarizes evaluation findings from session observations, activity feedback forms, student focus groups, and pre/post staff surveys. The findings show how AIM fostered inclusion, staff preparation to implement AIM, perceived impact of AIM and the After-School Math Plus activities on students, and recommendations for program improvement from the after-school and museum staff.

Fostering Inclusion

A compilation of observation data from CPC at PS 20 revealed that the AIM sessions most certainly fostered inclusion. All of the observation data indicated students with disabilities were expected to be as engaged as students without disabilities, and whenever students with disabilities had trouble engaging in the activities, extra support and encouragement was given to help students with disabilities fully participate. This was evident from the first day of the AIM program.

During the first session, staff facilitated a game to help break the ice and get students comfortable working with each other. This game and the support given to students with disabilities are described below:

Game:
In this activity, the students were paired in groups and they had to work together in their groups to gain points. The teacher instructed the students to find certain items (two lead pencils, three red markers, four blue pieces of paper, etc.) and the group leader (which the students chose) had to bring those items to the front of the classroom.

Students:
During this activity, most of the students were very excited and ran around the classroom trying to gather the items; however, a few of the students with special needs had a little more difficulty with this activity because they tended to keep to themselves and did not appear to want to interact.

Students with disabilities needed extra support:
All of the students received encouragement from the teachers and the assistants to work together, and some of the special needs students needed and received a little more coaxing and assistance from the teachers to work with their groups.

As the AIM sessions progressed and the class coalesced, evidence of the best practices of inclusion emerged. Observational data showed that students with disabilities took on roles within their groups and were valued by their peers for their contributions. Additionally, the teachers and assistants continuously encouraged students with disabilities to participate to their maximum abilities. The following observation notes describe two exemplary AIM sessions in which students with disabilities took on roles within their groups, were discouraged, and then with positive reinforcement were encouraged to complete the assignment.

Student with disability became discouraged:
Once the students tallied the answers for their survey, they began working on their visual presentation. During this time one of the students with special needs stopped working with his group and put his head down. The teacher went to him and asked why he wasn't participating and he said he didn't know what else to do because everyone else in the group was involved in decorating the Venn diagram.

Teacher provided positive reinforcement and accommodation based on student's strength:
The teacher suggested that because he was a very good artist he might try drawing the actual exercises depicted on the Venn diagram and that would make their diagram stand out from all the others in the class.

Student with disabilities is valued by peers for contribution:
When the group heard this suggestion all his peers began cheering him on to draw which caused the student to smile from "ear to ear," and he began drawing the different ways to jump rope.

The second example also shows how students with disabilities had meaningful roles in the activities and were valued for their contributions.

Students with disabilities struggle with the activity:
One student with special needs became very upset when he was paired up with another student. He refused to participate. Also in this group, another student with a disability was the recorder for the group. She had a great deal of difficulty measuring.

Teacher provided positive reinforcement and used behavior modification techniques:
The teacher pulled the student with a disability aside and had a long talk with him about participating and "trying." The teacher then promised the student that he would talk to his gym teacher about playing dodge ball (his favorite) if he gave the activity a chance. The student with a disability then participated fully. He counted off time for one of his teammates and helped with measurements, for which he received a great deal of positive reinforcement. The other student with a disability did an admirable job both jumping and recording. She also received a tremendous amount of positive feedback from her peers and teachers.

Students with disabilities are valued by teacher and peers for contribution:
When this team completed their assignment, the teacher pulled the group over for a team meeting. The teacher praised them for excellent cooperation and made a special mention of how the students with disabilities worked very hard to complete the activity. Both students with special needs beamed.

Observational data confirmed that the best practices of inclusion were in place. The next two exemplars illustrate how students with disabilities, participating in these AIM sessions, had opportunities for high-quality experiences. In the first example, students with disabilities rose to the occasion when other students were reluctant to perform an activity, and even when a student with disabilities ran into a problem the peers provided a solution and worked as a team to carry out the activity.

Students with disabilities take on substantive roles:
An interesting dynamic occurred because most of the students did not want to do the survey (find at least five people and ask them if they have jumped rope and why they jumped rope?) Therefore, the students in their groups decided who would be the one student to ask the questions while they assigned themselves other roles such as the designing, lettering and decorating of their Venn diagram. Two of the four students who were chosen by their peers to conduct the survey were students with special needs. The other two students tended to be the more popular ones of the class.

Student with disability has trouble and peers provide a solution:
One of the students with special needs had no problem asking questions but he kept forgetting to tally the responses; another student in his group volunteered to write the answers and, thus, they worked as a team.

In the second example, the students were working on creating a poster board based on survey information they had gathered. This was their last activity of the AIM sessions and students were highly invested in presenting their best work. One student with special needs had difficulty completing the task and the teachers gave this student an assignment that was appropriate for what the student could achieve but also meaningful to the task on hand.

Student with disability has trouble completing an assignment students are invested in:
All students were engaged in some aspect of the display board creation. One boy with a disability was unable to focus on graphing or writing.

Teacher provided positive reinforcement and accommodation based on student's strength:
The instructors gave him the assignment of creating something that could be put on the board that represented one of the "fears" mentioned by survey respondents. The boy decided to make paper airplanes to represent the fear of flying. This student was also given magazines to search for photos which could represent the fears.

Student with a disability plays a substantive role in the completion of the work:
This activity appeared to be a reasonable accommodation for the student with disability as it reinforced the responses from the survey and gave him a challenging assignment which was incorporated into the final display.

The best practices of inclusion encourage peer relationships to develop naturally, and this was evident in the observational data of the AIM sessions. During the first AIM session one student with disabilities had quite a difficult time completing a task and the student began to cry. The rest of the class laughed and only stopped when chided by the teachers.

One student with special needs, when asked to describe his drawing, burst into tears. The rest of the students initially laughed, but the teachers put on solemn faces and reminded them of the rule to treat each other with respect. The students stopped laughing and the teachers rallied the student to talk about his drawing. The student said a couple of words about his drawing, and then the teachers asked the rest of the class to give him a round of applause, to which the students complied.

The class applauded the efforts of the student with disabilities, but only after being prodded by the teachers. By the third week of the AIM program, as the following observation illustrates, the students were breaking out in spontaneous applause celebrating the efforts of their special-needs peers.

> Two students with disabilities were very reluctant to jump rope. While other students were jumping, the teacher encouraged one of the students with disabilities to participate. He finally agreed and said he would be willing to be a rope turner. After the activity, the teacher asked all the students to sit in the 'meeting place.' She asked students and teachers if they had any question or comments. One teacher shared with the class that one of the students with a disability had invented a new step that was "very cool." She also noted that another student with a disability now knows how to jump. Students clapped for both of them.

The observational data provided evidence that the AIM sessions helped fostered the best practices of inclusion which was further corroborated by the staff survey data.

The after-school teacher at CPC and the museum instructor at the New York Hall of Science were asked in a post-project survey if they thought math was a good content area for inclusion. Both agreed it was, saying:

> *Yes, because there are so many interdisciplinary areas. There is also a lot of manipulatives to use and it's interactive." [after-school teacher]*

> *"Yes, it depends on the subject matter. I think ArtMath and MusicMath would be better for students with some physical disabilities because it is not as physical as Jump Rope Math or the Built Environment. Students with other varying emotional abilities will be able to contribute to all themes." [museum instructor]*

As shown in Table 1 below, both of the staff believed that the AIM activities fostered inclusion of students with disabilities a great deal.

Table 1. In your opinion, to what extent did students with disabilities participating in the ASM+ activities… (n=2)	**Not at all**	**A little**	**Some**	**A fair amount**	**A great deal**
a. Engage in hands-on portions of the activities?	0	0	0	0	100%
b. Interact with general education students?	0	0	0	0	100%

Impact on students

As the above observations illustrated, all of the students who participated in the AIM sessions had the opportunity to work together on activities. Initially, the teachers and the assistants had to provide positive reinforcement, but in due course the students cheered each other on instinctively. On the staff survey, one teacher shared that she felt that the

inclusion of students with disabilities changed the learning environment of her classroom in a positive way. She reported that all of her students learned how to help each other and became more aware of their social skills.

The teachers created an inclusive environment which in turn fostered teamwork among all of the students, as shown in the observation described below.

> A student with a disability was clearly anxious about jumping rope. He had a great deal of difficulty making a single jump. The teacher repeatedly reassured him that it was o.k. if he made any attempt at jumping. The other students on his team responded with positive affirmations, and succeeded in getting the student to jump.

Many of the above examples have shown how students with disabilities were given positive reinforcement and accommodations and, as a result, were able to keep on task with their peers and successfully complete projects. The following notes from an observation also show how one student in particular flourish in this environment.

> One special needs student seemed to have blossomed during this program. During my previous visit, she was extremely quiet and tentative, and although she had participated during measurement activities, she was rather passive in a group. Today, she was a leader on her team, interacting confidently with her team and responding to my questions about their graph in a clear, secure manner. She also seems to have developed special friendships within the group.

The observer's last statement "*she also seems to have developed special friendships within the group,"* was echoed in the students' focus groups. The students acknowledged that through this AIM program they met new students and became friends. When asked if they knew each other before AIM, their responses spoke volumes about inclusion. For example, one student said*: "We've seen each other in school, but we never took classes together".* The AIM program brought together students with and without disabilities, and by the teachers following the best practices of inclusion, students who would not ordinarily have an opportunity to meet, collaborated on projects, supported each other and successfully enjoyed full participation in activities. This was captured during one of the observations:

> The classroom discussion about the bar graph ended and students were told they would be going to the gym to jump rope in as many different ways as they could conjure. The students ecstatically jumped rope in the gym, and came up with many creative ways of jumping rope individually and collectively. All of the students participated fully, and there was no observable distinction between the general education students and the special education students.

An additional impact of the AIM program supported by staff survey data is that participation in the AIM program helped students become familiar with mathematical concepts. As shown in Table 2 below, both the after-school teacher and the museum

instructor were asked in the post implementation survey if all the children benefited from their participation in AIM with an increased understanding of the mathematical concepts taught and career options/role models in math. One of the respondents indicated that they believed that the extent to which these things happened was slightly greater for all students than for students with disabilities. The lower ratings on the extent to which students learned about career options and role model is likely related to the fact that the site did not have time to cover all of the career activities. (see Table 2).

Table 2. In your opinion, to what extent did students… (n=2)	**Not at all**	**A little**	**Some**	**A fair amount**	**A great deal**
a. Participating in the ASM+ activities understand the concepts behind the mathematical procedures and problem solving used in the activities?	0	0	0	100%	0
b. Participating in the ASM+ activities learn about career options in math?	0	50%	0	50%	0
c. Participating in the ASM+ activities learn about diverse role models in math careers?	0	50%	0	50%	0
d. ***With disabilities*** participating in the ASM+ activities understand the concepts behind the mathematical procedures and problem solving used in the activities?	0	0	50%	50%	0
e. ***With disabilities*** participating in the ASM+ activities learn about career options in math	0	50%	50%	0	0
f. **W*ith disabilities*** participating in the ASM+ activities learn about diverse role models in math careers	0	50%	50%	0	0

Staff Preparation to Implement AIM

In regard to implementing the AIM program, the staff survey demonstrated that the after-school teacher and museum instructor felt prepared or very prepared to teach through cooperative learning, inquiry-based learning, and to manage hands-on activities. The after-school teacher also indicated that she felt prepared to make modifications for students with disabilities. The museum instructor felt somewhat prepared to do so, and also indicated that she may benefit from additional professional development. (See tables 3 and 4 below.)

Table 3. How well-prepared do you feel to do the following? (n=2)	**Not at all prepared**	**Not very prepared**	**Somewhat prepared**	**Prepared**	**Very prepared**
a. Manage a group of students who are using hands-on manipulative materials	0	0	0	0	100%
b. Use cooperative learning groups	0	0	0	50%	50%
c. Implement inquiry or discovery learning	0	0	0	50%	50%
d. Phrase open-ended questions to encourage investigations	0	0	0	0	100%
e. Make modifications for children with disabilities	0	0	50%	50%	0

Table 4. How would you rate your current level of need for professional development in each of these areas? (n=2)	None needed	Minor need	Moderate need	Substantial need
a. Deepening my own mathematics content knowledge	0	100%	0	0
b. Learning how to use inquiry/investigation-oriented teaching strategies	50%	50%	0	0
c. Learning to make modifications for children with disabilities	0	50%	50%	0

Recommendations

The following recommendations are based on feedback from one after-school teacher at CPC at PS 20, one instructor from the New York Hall of Science, and students who participated in the focus groups. Respondents were asked what went well, what did not go well, and for recommendations on improving the Jump Rope Theme activities of the After-School Math PLUS curriculum. Their responses are summarized below.

The teacher at CPC at PS 20 reported that what she thought worked best was that the students were having so much fun carrying out the activities; they didn't realize they were learning.

> *What I liked the best was the different graphs that were being taught as well as the research behind it. The students were learning how to start an investigation and they didn't even know it. They were able to see that they were starting the first few steps to a study. They would have eventually needed to learn this later in their educational careers. This was a good way to introduce and expose them to these skills.*

This teacher also reported that throughout the program student participation was high and that students enjoyed the jumping portion of the activities.

An instructor from the New York Hall of Science indicated that the students performed quite effectively in the following activities:

- "The survey and exhibit exploration went well because the students were interested and excited."
- "Students organized themselves well pertaining to the question they wanted to investigate."
- "Students were able to complete data collection and the plotting of the graph. They liked drawing the line and the numbers."

Staff was also asked what they thought did not go as well while implementing the Jump Rope Theme activities of the After-School Math PLUS curriculum. A teacher at CPC at PS 20 made reference to two particular activities that were difficult, especially for the students with disabilities. These problems were also noted by the evaluations' observers.

In the first activity students were asked to draw pictures of people using math in everyday life. With encouragement all of the students were able to complete the drawing portion of the activity. What was more difficult for students with disabilities was making the verbal presentation of their drawings. The students with disabilities were shyer than their peers and were quite reluctant to come to the front of the class to speak. This was also one of the first activities of the program, thus students had not yet bonded, which could have contributed to the reticence of the children with disabilities.

In the second activity students had to measure how far they jumped and were equipped with a meter stick, a tape measure, or with a rope. Much confusion occurred during the instruction of measurement, as it was unclear as to whether the students should measure in centimeters or meters, and whether the measurements were cumulative (i.e. jump one distance plus jump a second distance, or separate).

An instructor from the New York Hall of Science reported that the students struggled in these two areas:

- "Thinking of survey questions and picking a topic."
- "Initially, students were shy and were afraid of talking and answering questions, but by the end they all were interacting with each other."

The staff both from CPC at PS 20 and at the New York Hall of Science made the following suggestions related to implementing AIM through the Jump Rope Theme activities of the After-School Math PLUS curriculum. Students who participated in the activities also made suggestions and are listed below.

Recommendations from CPC at PS 20 staff:

- Give students more time to finish their math activity drawings. Have students just draw first, and then share, followed by a chart.
- Reduce the content in each session so that the lessons are not so long
- Slowly introduce the concept days before the activity. Explain the vocabulary as well as give various examples.
- Break down more of the individual skills involved in each session (students are at different grade levels)
- Incorporate more literacy into each lesson

Recommendations from the New York Hall of Science staff:

- Break students into smaller groups
- Provide additional direction to students before they begin creating their graphs

Recommendations from the AIM student participants:

- Though students reported enjoying jumping rope, they also felt the program would be more interesting if other sports were also incorporated in the curriculum.

IV. Summary and Conclusion

This report describes the implementation of the AIM program at the Chinese-American Planning Council (CPC) after-school program at PS 20 during the summer of 2008. All of the data collected during this implementation period indicates that implementation of AIM and the After-School Math PLUS activities fostered inclusion of students with disabilities in an after-school setting. Students with disabilities were engaged in the activities, had meaningful roles, and were valued for their contributions—all hallmarks of an effective inclusive environment. In addition, the after-school teacher and museum instructor felt prepared to implement the activities, although the after-school teacher indicated that she would benefit from more professional development on making modifications for children with disabilities. In summary, it is clear that the project goal of implementing After-School Math PLUS in an inclusive environment was met.

Appendix 1

SITE VISIT OBSERVATION PROTOCOL

After-school Inclusive Math (AIM)

1. **Site/School:**
2. **Grade:**
3. **Activity location:**
4. **Is location barrier free?** *(ramps/elevators available, no columns or steps, etc…)*
5. **Time:**
6. **Observer:**
7. **Number of Instructors:**
8. **How many students?**
    - **a.** Boys
    - **b.** Girls
    - **c.** Students with disabilities
    - **d.** Aides for students with disabilities?
    - e. What disabilities were observable (visual, auditory, motor, etc..)?
9. **Do all students appear to be comfortable?**

10. **Seating Arrangement: For everyone**
    - **a.** Individual seating
    - **b.** In pairs
    - **c.** In groups
    - **d.** Around a table
    - e. In a circle
11. **Seating arrangement: For students with disabilities**
    - **a.** Integrated with the larger group
    - **b.** Are they all sitting together?
    - **c.** Are they off to the side?
    - **d.** Are they placed along a wall?
    - **e.** Are they left alone?

12. **Are students utilizing wheelchairs or other mobility devices able to access materials?**

Materials

13. Are materials used for activities modified for special needs? (Describe how:)

Activity: Describe the activities observed.

14. Engagement

- **a.** Did all students have the opportunity to express his/her idea?
- **b.** Did all students contribute ideas?
- **c.** Are all students encouraged to participate?
- d. Did all students appear to be interested in/enjoying the activities?

15. How are students engaged in the activity?

- a. Students problem solve on their own
- b. Students work together and take on different roles
- c. Students do work hands-on

16. How are students with disabilities engaged?

- a. Students with disabilities are equally as engaged as their peers

17. What provisions are made for students with special needs?

- a. Students do the work for the students with disabilities
- b. Students with special needs provide the directions on how they want the work done
- c. Students with special needs are paired with another/other students and they share the tasks
- d. Students with special needs do the hands-on activities
- e. Students with special needs have other students do the hands-on activities for them
- f. Students with disabilities take on specific roles for the activity\
- g. Students with disabilities are left out of role-taking activities

18. If modifications were made for special needs students, please describe them:

19. Did all the students appear to understand the math content emphasized during the activity? Did any seem confused or to "not get it?"

Appendix 2

ACTIVITY FEEDBACK FORM

After-school Inclusive Math
Spring 2008

Your Name: Date:
Title: Center Name:
Activity Name: Student ages(s): # of Students
Location of Activity:

1. How did you plan for this activity?

2. Did you use any of the modifications from the curriculum or from the training? If so, which ones?

3. Were the modifications appropriate for the student?

4. What happened? (What were some of your observations?)

5. Were all students engaged in this activity? Please describe successes and challenges.

6. How comfortable were you implementing this activity with all the students in your group?

While leading the activity.....

7. What went well?

8. What didn't go well?

9. What would you change next time?

Appendix 3

STUDENT FOCUS GROUP PROTOCOL

After school Inclusive Math (AIM)

Date: _____
Facilitator: _____
Participants: #_____ Boys:_____ Girls:_____

Intro: We are going to spend a little bit of time talking about your after school math activities (name of the program). How many of you remember the (name of the program) How many of you went to all of the program activities? Ok, so let's talk about:

1. Do you like math? If yes, why do you like it? If no, why not?

2. Did this class help you like math more?

3. What do you like about the math activities you have done in the after school program? Is there one activity that you liked the most?

4. What don't you like about the math activities you have done in the after school program? Is there one activity that you didn't like?

5. Is learning math in the after school program different from learning math in school? If so, how?

6. Is there anything you would change about this class or the math activities you do after school?

7. In this program I learned about _____

8. The one thing I will remember the most about (program) is _____.

9. Do you want to ask anything about the student interactions? Perhaps a question like, "Did you meet students you didn't know before through this program?" It would be interesting to see if the program fosters some stronger interactions between students with and without disabilities.

Appendix 4

STAFF POST SURVEY

After-School Inclusive Math (AIM)

Date: _____Name: _____Theme: _____

Please tell us about your experience using After-School Math PLUS (ASM+) with students with and without disabilities at your center. There are no right or wrong answers. Your answers are confidential and will only be reported in summary. Completing this form will help us know more about our programs and how to improve them.

1.) How well-prepared do you feel to do the following?

	Not at all prepared	Not very prepared	Somewhat prepared	Prepared	Very prepared
a. Manage a group of students who are using hands-on manipulative materials.	☐	☐	☐	☐	☐
b. Use cooperative learning groups.	☐	☐	☐	☐	☐
c. Implement inquiry or discovery learning.	☐	☐	☐	☐	☐
d. Phrase open-ended questions to encourage investigations.	☐	☐	☐	☐	☐
e. Make modifications for children with disabilities	☐	☐	☐	☐	☐

2.) How would you rate your current level of need for professional development in each of these areas?

	None needed	Minor need	Moderate need	Substantial need
a. Deepening my own mathematics content knowledge	☐	☐	☐	☐
b. Learning how to use inquiry/investigation-oriented teaching strategies	☐	☐	☐	☐
c) Learning to make modifications for children with disabilities	☐	☐	☐	☐

3.) In your opinion, to what extent did students participating in the ASM+ activities….(Mark one for each):

	Not at all	A little	Some	A fair amount	A great deal
a. Understand the concepts behind the mathematical procedures and problem solving used in the activities.	☐	☐	☐	☐	☐
b. Learn about career options in mathematics.	☐	☐	☐	☐	☐
c. Learn about diverse role models in math careers.	☐	☐	☐	☐	☐

4.) In your opinion, to what extent did the students ***with disabilities*** participating in the ASM+ activities….(Mark one for each):

	Not at all	A little	Some	A fair amount	A great deal
a. Understand the concepts behind the mathematical procedures and problem solving used in the activities.	☐	☐	☐	☐	☐
b. Learn about career options in mathematics.	☐	☐	☐	☐	☐
c. Learn about diverse role models in math careers.	☐	☐	☐	☐	☐
d. Engage in the hands-on portions of the activities?	☐	☐	☐	☐	☐
e. Interact with general education students?	☐	☐	☐	☐	☐

5. In implementing the ASM+ curriculum, what modifications for students with disabilities did you make? Did you utilize modifications included in the ASM+ guide?

6. In your opinion, how well did the modifications made for students with disabilities work? What didn't work? Please be specific.

7. Do you feel you had sufficient information/background about the specific needs of the students with disabilities at the start of the ASM+ program? If not, what additional information would have been helpful?

8. Did the ASM+ activities foster inclusion of students with disabilities with other students? Please describe why or why not.

9. Was ASM+ a successful math experience for all students in your program?

10. Based on your experience implementing ASM+, do you believe math is a good content area for an inclusion program? Why or why not?

11. How was this afterschool program different from others you have implemented? Do you think the inclusion of students with disabilities changed the learning environment in any way (positive or negative)? If so, how?

12. What did you like best about the ASM+ activities?

13. What did you like least about the ASM+ activities?

14. Do you have any recommendations for future activities or changes to the ASM+ activities?

Thank You Very Much!

The Academy for Educational Development (AED) is an independent, nonprofit organization committed to addressing human development needs in the United States and throughout the world. As one of the world's foremost human and social development organizations, AED works in five major program areas: U.S. Education and Workforce Development; Global Learning; Global Health, Population and Nutrition; Leadership and Institutional Development; and Social Change. At the heart of all our programs is an emphasis on building skills and knowledge to improve people's lives.

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