Assessment Summary I (Pre-test/Post-test)

The participants for this portion of the results consisted of 10 Access classes (students who received free admission) and 17 additional classes for a total of 27 classes. Those students in the Access classes were all from elementary schools (grades 3-5) with the addition of one other class for a total of 11 elementary classes (41%); and, those students in the remaining classes were from middle schools (grade 6-8) for a total of 16 middle classes (59%). The Access classes along with one additional class participated in the program, *Our Place in Space* and the remaining classes participated in the program, *Active Atmosphere*. Classes that had incomplete pre and post-test data were not included in the assessment summary. The assessment tool used was the Classroom Performance System by E-Instruct. Participating students used wireless response pads to answer multiple choice and True/False-style questions. Students who participated in the *Journey to Earth* (grades 1-2) class were not assessed using the Classroom Performance System.

*Question: What was the average pre-test class point score for all classes? For Access classes (those with free admission)?*

When examining the pre-test class point scores for all classes (N=27), it was determined that the average score was 53.57%, ranging from 40.48% to 72.73%. For those students who received free admission (the Access classes), the average pre-test class point score (N=10), was 53.40%, ranging from 40.48% to 61.05%.

*Question: What was the average post-test class point score for all classes? For Access classes (those with free admission)?*

When examining the post-test class point scores for all classes (N=27), it was determined that the average score was 70.11%, ranging from 52.86% to 90.00%. For those students in the Access classes (N=10), the average post-test class point score was 66.61%, ranging from 52.86% to 77.37%.

*Question: When comparing pre-test and post-test class point scores was there a significant difference in scores (either positive or negative)?*

When comparing pre-test and post-test class point scores for the whole group (N=27), the average pre-test % was 53.57 and the average post-test % was 70.11, yielding a % difference of +16.54. While this % difference is positive, it was also found to be statistically significant. When a correlation was performed, the pre-test and post-test were significantly correlated at the 0.01 level (p=.01), meaning that the tests measure the same concepts. Further, the results of a T-test yield significance at the .001 level (p<.001***), meaning that for the whole group the difference between the pre-test average score and the post-test average score was statistically significant. The T-test was chosen because it assesses whether the mean (average) of two groups are statistically different from each other.

When comparing pre-test and post test class point scores for the Access group (N=10), the average pre-test % was 53.40 and the average post-test % was 66.61, yielding a % difference of +13.21. While this % difference is positive, is was also found to be statistically significant. When a correlation was performed, the pre-test and post-test were significantly correlated at the 0.05 level (p<.01**), meaning that the tests measure the same concepts. Further, the results of a T-test yield significance at the .001 level

(p<.001***), meaning that for the Access group the difference between the pre-test average score and the post-test average score was statistically significant.

*Question: What was the average increase or decrease in class point scores for the whole group? What was the average increase or decrease in class point scores for the Access group?*

As previously mentioned, there was an average increase of +16.54% in class point scores for the whole group and an average increase of +13.21 in class point scores for the Access group.

*Question: What percentage of classes showed improvement based on a significant increase in class point scores? Specifically, what percentage of classes showed at least a 10% increase in class point scores?*

When considering the percentage of classes that showed at least a 10% increase in class point scores, overall 85% of the classes showed an increase of at least 10% or greater, ranging from 10.48% to 26.66%. More specifically, for the Access group 70% (N=10) of the classes showed at least a 10% increase in class point scores, ranging from 12.38% to 24.58%. For the remaining classes (N=17), 94% of the classes showed at least a 10% increase in point scores, ranging from 10.48% to 26.66%.

Assessment Summary II (Visitor/Public Survey)

*Earth and Beyond*

Descriptive statistics for the *Earth and Beyond* Program yielded the following: 10.3% of participants attended on Monday, 7.7% attended on Wednesday, 25.6% attended on Thursday, and 56.4% attended on Friday (N=39). In addition, participants were asked a series of general and content questions and were asked for additional questions/comments. The results indicated that 100% of the participants felt that the Science on a Sphere enhanced their visit to the McWane Science Center; 100% agreed that the Science on a Sphere images made a complex topic more understandable; 82% (17.9% missing) felt as if they learned/gained knowledge during their visit to the Science on a Sphere; and, 97.4% agreed that they would visit the Science on a Sphere exhibit again.

In regard to content questions, 100% of participants stated that Earth was NOT the only planet that has polar ice caps and 100% of participants stated that the Great Red Spot on Jupiter was NOT a crater.

Additional questions/comments included very well presented (knowledgeable presenter); fantastic, cool; see through version (transparent); add or change signs to show where SOS is located; I love this! So, so, etc. cool!; I love this exhibit but the problem I

have is the sound. I can never hear the sound due to all the surrounding noise. I think it would capture the children's attention if they could hear.

*Journey to Mars*

Descriptive statistics for the *Journey to Mars* Program yielded the following: 45%% of participants attended on Tuesday, 32.5% attended on Wednesday, and 22.5% attended on Saturday (N=40). In addition, participants were asked a series of general and content questions and were asked for additional questions/comments. The results indicated that 95% (5% missing) of the participants felt that the Science on a Sphere enhanced their visit to the McWane Science Center; 100% agreed that the Science on a Sphere images made a complex topic more understandable; 97.5% felt as if they learned/gained knowledge during their visit to the Science on a Sphere; and, 100% agreed that they would visit the Science on a Sphere exhibit again.

In regard to content questions, 92.5% of participants stated that Mars is tilted on its axis, while 7.5% answered no; and, 67.5% of participants stated that Mars is NOT called the Red Planet because of its temperature, while 32.5% answered yes.

No additional questions/comments were reported from this group of participants.

*General Question Only*

Descriptive statistics for the *General Question Only Survey* yielded the following: 18.2% of participants attended on Monday, 54.5% attended on Tuesday, 9.1% attended on Wednesday, and 18.2% attended on Friday (N=22). In addition, participants were asked a series of general questions and were asked for additional questions/comments. The results indicated that 100% of the participants felt that the Science on a Sphere enhanced their visit to the McWane Science Center; 100% agreed that the Science on a

Sphere images made a complex topic more understandable; 100% felt as if they learned/gained knowledge during their visit to the Science on a Sphere; and, 100% agreed that they would visit the Science on a Sphere exhibit again.

In regard to content questions, 100% of participants stated that Earth was NOT the only planet that has polar ice caps and 100% of participants stated that the Great Red Spot on Jupiter was NOT a crater.

Additional questions/comments included “this sphere is really cool! I wish I had one at home” and “I want one for my birthday”.