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Math Club

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NEBRASKA HONORS PROGRAM

CLC EXPANDED LEARNING OPPORTUNITY CLUBS

INFORMATION SHEET

Name of Club: Math Club

Age/Grade Level: Middle School

Number of Attendees: (ideal number) 2-3

Goal of the Club: (learning objectives/outcomes)

To provide a space for students to explore interest in math and connect with older math-interested students.

Resources: (Information for club provided by)

Internet, Pre-owned board games

Content Areas: (check all that apply)

- ☐ Arts (Visual, Music, Theater & Performance)
- ☐ Literacy
- ☒ STEM (Science, Technology, Engineering & Math)
- ☐ Social Studies
- ☒ Wellness (Physical Education, Health, Nutrition & Character Education)

Outputs or final products: (Does the club have a final product/project to showcase to community?)

N/A

Introducing your Club/Activities:

This math club engages students with logical thinking, curiosity driven math concept exploration, and comfortably discussing math and logic with peers.

General Directions:

Introduce a variety of math/logic games and activities but focus on letting students drive their own experience—the purpose of math club is to help students facilitate their own journey with math, as school math is often looked upon by students as boring and difficult.

Tips/Tricks:

Have fun! Have backup plans for if an activity relies on Wi-Fi and technical issues arise. Be patient with homework help, and try to view subjects from their point of view in order to help guide them from point A to point B.

LESSON PLAN WORKSHEET

Lesson Activity Name: This or that, rules and expectations, Einstein's Puzzle, math proof

Length of Activity: 15 min, 15 min, 30 min

Supplies: Paper, colored markers

Directions:

Call out a statement like "Do you like ____ or ____?" and then based on the answer, go to a designated side of the room. Ask students what they think the rules and expectations for the club should be and write them down on a piece of paper as a source of accountability. Since Einstein's puzzle is well-known, look up how to do it online and have the kids perform it on their own so that they can use it later with friends. The math proof we did was proving that the square root of two is equal to the number two, which can also be found online.

Conclusion of the activity:

Got to know students, set up expectations, went through Einstein's puzzle, showed simple math proof.

Parts of activity that worked:

Some success with Einstein's puzzle, general excitement for the club, students found simple math proof interesting and wanted to remember it to show to their parents.

Parts of activity that did not work:

It was mildly challenging to make Einstein's puzzle directions digestible, so the students could follow them correctly and see the "trick".

LESSON PLAN WORKSHEET

Lesson Activity Name: Charades, Dot-to-dot graphing, homework help

Length of Activity: 15 min, 30 min, 15 min

Supplies: Graph paper, colored pencils, coordinate picture lists

Directions:

Play a welcome game, like charades, to get kids engaged and get to know one another better. Look up dot-to-dot graphing online and use resources found there to lead kids in activity. Fundamentally, there's a list of points that the students graph and then connect based on the order. This makes a picture that they can then color. Offer help to students with their homework from the day or studying for a test.

Conclusion of the activity:

Students created pictures through dot-to-dot graphing and received homework help.

Parts of activity that worked:

Students enjoyed the creative aspect of drawing, and were very engaged during one-on-one math help.

Parts of activity that did not work:

Students experienced frustration when they struggled to understand slope and y-intercept concepts.

LESSON PLAN WORKSHEET

Lesson Activity Name: Charades, Drawing Describer

Length of Activity: 15 min, 45 min

Supplies: Paper, pencils, whiteboard

Directions:

Play a welcome game, like charades, to get kids engaged and get to know one another better. Have one student at the whiteboard, another facing away from it with a pencil and piece of paper, and a third student facing both the other students. Have the student at the board draw a fairly simple picture using only geometric shapes. Then the third student will describe the picture to the second student only using math terminology. The second student will then try to replicate the drawing on the whiteboard based on what they are told. Compare once finished.

Conclusion of the activity:

Students explored creative expression through halloween charades, and math vocabulary through drawing describer.

Parts of activity that worked:

Students were very excited to participate in drawing describer, and wanted to explore the different roles (describer, drawer, observer).

Parts of activity that did not work:

Students wanted to use non-math related vocabulary in order to adequately express their ideas

LESSON PLAN WORKSHEET

Lesson Activity Name: 20 game, Dice rolling points game

Length of Activity: 15 min, 45 min

Supplies: Paper, pencils, dice

Directions:

See if students can count to 20 without anyone speaking at the same time. Draw a grid on the board with possible answers in each grid spot. On each person's team, they roll three standard dice and can perform up to two basic mathematics operations to get a resulting number. They mark their number on the grid and get points for any adjacent marks of their color. When grids are full, the highest point wins

Conclusion of the activity:

Had fun, used logical processes and strategy to succeed in the game.

Parts of activity that worked:

The competition element excited them to be very engaged, and even when it wasn't their turn, students were trying to solve what move would be best for their opponents.

Parts of activity that did not work:

Students got impatient when it was not their turn to play.

LESSON PLAN WORKSHEET

Lesson Activity Name: Math-themed 20 questions, SET game

Length of Activity: 15 min, 45

Supplies: SET game

Directions:

Perform normal 20 questions game except only about math related content. Look for specific patterns in cards, try to find patterns faster than others. Points for how many “sets” you find

Conclusion of the activity:

Students learned a new game that can be played individually or as a group, and throughout about how to ask questions related to math.

Parts of activity that worked:

Students absolutely loved Set, they wanted to keep playing round after round.

Parts of activity that did not work:

Students were frustrated when they didn’t understand what patterns were legal in the game of Set.

LESSON PLAN WORKSHEET

Lesson Activity Name: Hand-tapping game, Knockout game, homework help

Length of Activity: 5 min, 30 min, 25 min

Supplies: Knockout game

Directions:

Go in a circle tapping hands on the table until someone messes up the order and gets out. Play Knockout per its instructions. Offer help to students with their homework from the day or studying for a test.

Conclusion of the activity:

Learned two new group games, received homework help.

Parts of activity that worked:

Really enjoyed focus and concentration of hand tapping game, were competitive but logical during knockout game, attentive and persistent during homework help.

Parts of activity that did not work:

The knockout game took a long time and we did not finish because the students became bored

LESSON PLAN WORKSHEET

**Lesson Activity
Name:**

Hand-tapping game, Logic puzzles, set, homework help

Length of Activity:

5 min, 30 min (students choose between logic and set), 25 min

Supplies:

Set

Directions:

Play the hand-tapping game same as last week. Look up logic puzzles online for the students to figure out on their own. Reference a past week to play the game of set. Offer help to students with their homework from the day or studying for a test.

Conclusion of the activity:

Reinforced learning of two new games, used logical reasoning to figure out puzzles.

Parts of activity that worked:

The students asked us to play the games again, showing that they enjoyed them and had a desire to better understand the confusing rules. Some of the students were dedicated to solving the logic puzzles and got excited when they advanced their progress.

Parts of activity that did not work:

Some of the students didn't believe they would be able to solve the logic puzzles and didn't want to try.

LESSON PLAN WORKSHEET

Lesson Activity Name: Reflection on semester so far, Even Stevens Odd game, homework help

Length of Activity: 10 min, 30 min, 20 min

Supplies: Even Stevens Odd game

Directions:

Have a short discussion with students and reflect on how the club is going. Play Even Stevens Odd per the instructions on the box. Offer help to students with their homework from the day or studying for a test.

Conclusion of the activity:

Students took time to reflect on their semester academically, and on their participation in math club, also learned a new game and received homework help.

Parts of activity that worked:

Students expressed appreciation of math club, and general good feelings about the academic semester.

Parts of activity that did not work:

Students were not particularly interested in the game we played, and didn't get motivated to compete.

LESSON PLAN WORKSHEET

Lesson Activity Name: Hand-tapping game, Logic puzzles, set, blooket (online game)

Length of Activity: 5 min, 30 min (students choose between logic and set), 25 min

Supplies: Computer, Set

Directions:

Play the hand-tapping game same as last week. Look up logic puzzles online for the students to figure out on their own. Reference a past week to play the game of set. Look up math-related blookets to play with the kids.

Conclusion of the activity:

Reinforced abilities on some of the previously introduced games, used logical reasoning, had fun.

Parts of activity that worked:

The hand tapping game, Set, and Logic Puzzles were all well received and students were excited to play again and reinforce their skills. They were energized to play Blooket and generally have fun.

Parts of activity that did not work:

Students wanted to do different activities so multiple things were going on and we bounced around facilitating the different activities.

LESSON PLAN WORKSHEET

Lesson Activity Name: Hand-tapping game, Logic puzzles, set, homework help

Length of Activity: 5 min, 30 min (students choose between logic and set), 25 min

Supplies: Set

Directions:

Play the hand-tapping game same as last week. Look up logic puzzles online for the students to figure out on their own. Reference a past week to play the game of set. Offer help to students with their homework from the day or studying for a test.

Conclusion of the activity:

Reinforced abilities on some of the previously introduced games, used logical reasoning, and received math homework help.

Parts of activity that worked:

Again, excited to play games and reinforce skills. Students also showed excitement about successes in math class after receiving homework help.

Parts of activity that did not work:

Set became slightly too competitive and students had to tone down their energy levels to remain respectful.

LESSON PLAN WORKSHEET

Lesson Activity Name: Hand-tapping game, crafts, logic puzzles, set, homework help

Length of Activity: 10 min, 45 min (students choose which activity to do)

Supplies: Paper, pens, Christmas music, Set

Directions:

Play the hand-tapping game same as last week. Bring a paper craft for students to do, like making snowflakes with geometry. Look up logic puzzles online for the students to figure out on their own. Reference a past week to play the game of set. Offer help to students with their homework from the day or studying for a test.

Conclusion of the activity:

Had fun playing games they have at this point learned fairly well, prepared for upcoming tests, reflected on themselves and the club.

Parts of activity that worked:

Students greatly appreciated our personalized notes, enjoyed the Holiday spirit, felt better about upcoming math tests, and had fun playing games.

Parts of activity that did not work:

Students were not interested in crafts, and didn't like our choice of Christmas Music.