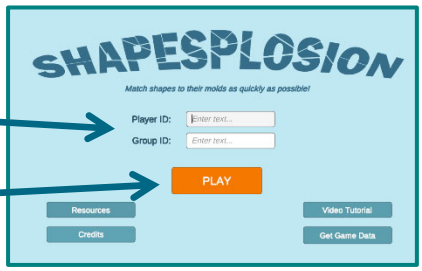
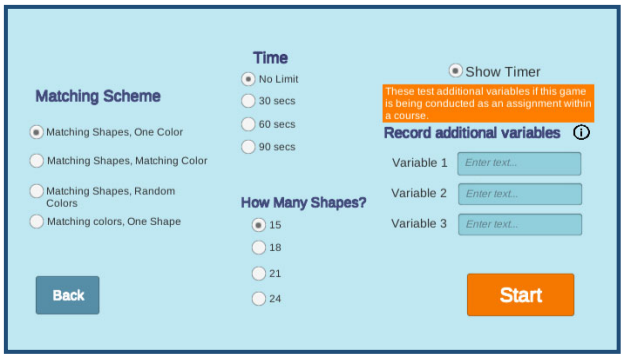
Shapesplosion Game Instructions:

Go to the website and watch the video tutorial: https://stat2games.sites.grinnell.edu.
Then select the **Shapesplosion** tab and then click the **Play Shapesplosion** button.
This site may take a few seconds to load.



- Enter a **Player ID** and a **Group ID**. Any combination of alpha-numeric characters will work. *Note that this ID will be public on the web, so do not use your actual name for a PlayerID.*
- Click the **Play** button:

This will bring you to the **Menu** page. There are several options that you can choose from. You may choose to ignore these options and simply click the **Start** button.

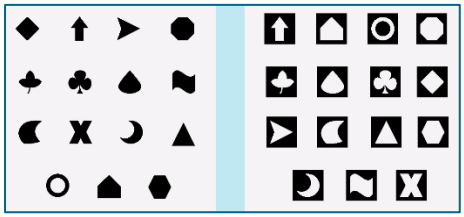


Goal: Match the shapes on the left screen to their molds on the right screen as quickly as possible.

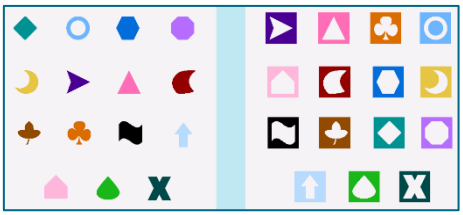
GAME OPTIONS:

Matching Scheme: There are four game types that you can choose from.

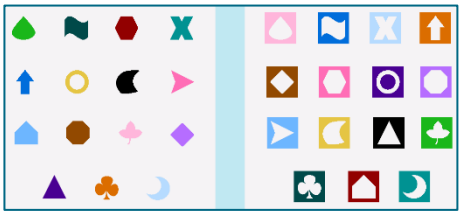
Matching Shapes, One Color (all the same color)



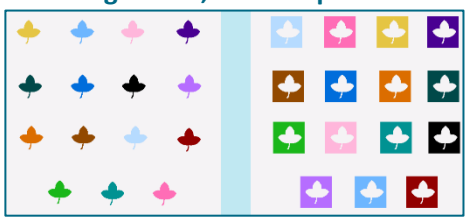
Matching Shapes, Matching Color (colors are helpful)



Matching Shapes, Random Color (colors add difficulty)



Matching Colors, One Shape



Time: Players can choose to restrict the time allowed to complete the game to 30, 60 or 90 seconds.

How Many Shapes: Players can add complexity by increasing the number of shapes in each puzzle.

Show Timer: This option allows the player to see the timer to let them know how much time they have to play.

Record Additional Variables: Players can choose to record other features that might influence their game performance. For example, you can enter "Math" or "Other" into Variable 1 to keep track of whether the player is a Math major or not. With enough data, you can determine if major is related to the time it takes to win the game. Other variables that could be included are player gender, player experience with online games, and the amount of sleep the player had the night before.

Shapesplosion Variable Descriptions:

Variable Name	Type	Description
Game:	Integer	Each game is assigned a unique game number
Date	Date	The date and time the game was played. It has a Year/Month/Day/Hour: Minute format.
PlayerID	Categorical	Any alpha-numeric term used for each player
GroupID	Categorical	Any alpha-numeric term used for each player or group. Often instructors ask all students in the class to use the same GroupID
Potential response variables		
Time	Quantitative	The time used to complete the game
Win	Categorical	1 represents a win, 0 represents a loss
NumClicks	Integer	The number of clicks the player used during the game
ShapesMatched	Integer	The number of pieces that were correctly matched in the game
Potential explanatory variables		
MatchingScheme	Categorical	The four types of games that are available. This is selected by the player from the menu screen.
ReqTime	Categorical	The time option selected from the menu screen. The time available can be unlimited or set to 30, 60, or 90 seconds.
DisplayTime	Categorical	1 represents that the timer was displayed. 0 represents no timer displayed.
NumShapes	Both	The number of shapes used in the game (15, 18, 21, or 24). This is selected from the menu screen
NumClicks	Integer	The number of clicks the player used during the game
ShapesMatched	Integer	The number of pieces that were correctly matched in the game
Var1		Any additional variable you would like to record (e.g., player's age)
Var2		Any additional variable you would like to record (e.g., player's experience level)
Var3		Any additional variable you would like to record (e.g., type of distraction that the player was exposed to)

Sample student handouts, instructor notes, and research activities are available here:
https://drive.google.com/drive/folders/1UyMtxFthjD57UyssqUL1poXbmlRxl1ZM

Potential Research Questions:

T-test:

- When there is no time limit, do the game types (MatchingScheme) have different expected completion times (Time)?
- When there is a 30-second time limit, do the game types (MatchingScheme) have different expected numbers of shapes that are correctly matched (ShapesMatched)?

Chi-Square Test:

- When there is a 30-second time limit, do the game types (MatchingScheme) have the same probability of winning (Win)?

ANOVA:

- Do the game types (MatchingScheme) have different expected completion times (Time)?
- Is blocking by PlayerID better than a completely randomized design?
- Does the expected completion time change depending on a student's intended college major, gender, or athleticism?

Regression:

- Is there a relationship between the number of clicks (NumClicks) and the completion time (Time)?

Logistic Regression:

- How well can we predict the probability of winning based on MatchingScheme, PlayerID, NumClicks, ReqTime, DisplayTime, and NumShapes?