

## **BlackBox v2.0**

### **Object of the Game**

The object of the game is to determine the locations of the hidden particles within the black box. In order to do this, you will inject probes into the box and observe their behaviour (i.e. where it comes out or whether it is absorbed or reflected). The behaviour is governed by defined interactions between the probe and the particles inside the box.

### **INDEX**

How to Play

Interactions:

Bounce

Absorb

Reflect

Game Parameters

Options

Tips and Hints

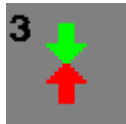
## Game Parameters

There are three predefined levels of play to choose from: Beginner, Intermediate, and Expert. They differ only in the number of particles you are asked to locate: 3, 6, and 8 respectively. You are limited to 20 probes after which if you haven't found all of the particles, you may give up.

You may also set your own parameters with the custom option. Selecting this allows you to specify the number of probes you have up to a limit of 40 (the extent of the box! see [Hints](#) ). Also you may increase or decrease the number of particles at will.

## Options

Selecting this allows you to turn on **collision reporting** for various events. This feature tells you how many particles the probe has bounced off of before being detected coming out of the box, or before being absorbed. In the case of absorption, the number of particles touched does NOT include the absorbing particle. Therefore in the [example](#) on the right, the number of collisions would be 2, NOT 3. In the case of reflection, the two flanking particles count as 2 NOT 1, but don't forget the collisions of the probe on its way back!



The number of collisions is displayed in the upper left hand corner of the icons. For probes not absorbed or reflected, the result is located on the exit icon. For probes bounced into the corner, there is no report as there can be only one particle interaction.

## Hints

If you cannot get the hang of this or are confused as to how the probes behave, select Custom... and set the number of probes to 40. You can increase the number of particles to get a good demonstration. Select grey tiles around the box until you run out of tiles. Then press Give Up. This will show you the positions of the particles in the box. From this you can trace where each probe went and why it behaved in that particular manner.

Sometimes the only way to deduce a particle's position is to make use of negative information. If a probe is travelling in a straight line, that must mean that there are no particles flanking that row. This can narrow down the number of possible areas for that last particle.

When you start to increase the number of particles past 8, it becomes very difficult. Turning on **collision reporting** for various events makes the game more playable.

## How to Play

You inject probes by clicking on one of the 40 grey tiles at the edge of the black box . Depending upon whether the probe was bounced, absorbed or reflected, an icon will replace one of the grey tiles. The letter within the tile serves to identify which injections correspond to which exits Probes reflected into the corners are a special case where the exits will be marked as a white letter in one of the black corner tiles. If you think that you know where a particle is located, click the location in the gridded area; a particle will appear in the selected box. This does not mean that your deduction is correct, however when all of the particles are correctly placed, the game will inform you of your success.

At the bottom of the black box display, there is a status bar which tells you how many probes you have left as well as the number of particles left for you to place on the board. Again the latter index does not give you an indication of how many you have right so far.

### See also:

Bounce

Absorb

Reflect

Spot where the probe exits the black box

Spot where you started the probe.

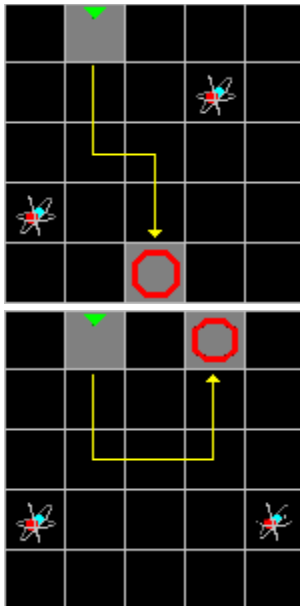
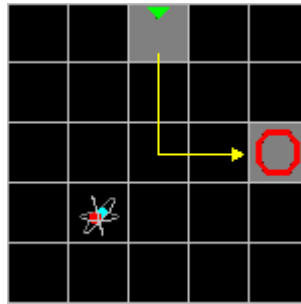
Place the mouse cursor over the area of interest and press the left mouse button once (or the right button for lefties)



These are the defined rules which allow you to deduce where the particles are hidden depending upon where the probe enters and exits, and whether it is absorbed or reflected.

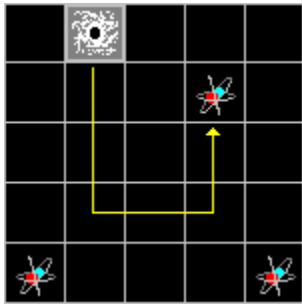
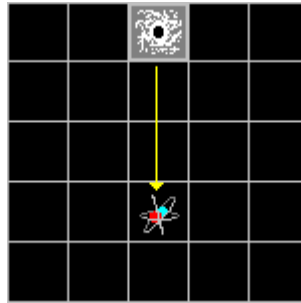
## Bounce:

These are some of the bounce interactions which you may encounter. The first one is the simplest, demonstrating an interaction with only one particle. Notice the position of the particle relative to the row and column of the probe's entry and exit. The other examples give you an indication of the possible complexities when a probe interacts with more than one particle.



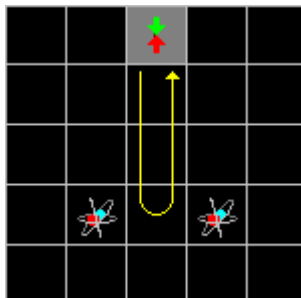
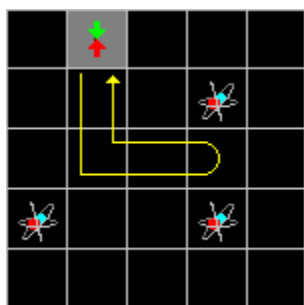
## Absorb:

Below are several examples of what will happen when a probe strikes a particle head on. Notice that the probe may bounce off several particles BEFORE getting absorbed, thus when you see the absorbed icon, it does not guarantee that the particle is on that particular line.



## Reflect:

When a probe encounters a particle on either side of it, it is reflected directly back along its path. Again, as in the case of absorption, the probe may interact with several particles before being reflected.



The black box is the black gridded area surrounded on four sides by grey tiles. It is in this region where the particles are hidden.

