

Experiment cards

Please use A4 duplex/double sided printing, one copy of each page (total = 5 x A4 sheets).
Please use the trim guides supplied

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Amazing Success



Amazing Success



Amazing Success



Groundbreaking Discovery



Amazing Success



Amazing Success



Amazing Success



Groundbreaking Discovery



Breakthrough

Some experiments are of wider benefit to all scientists.



Every player, including you, immediately places 1 Success token on a Science icon that matches your beamline, if possible.

Breakthrough

Some experiments are of wider benefit to all scientists.



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Failure



Failure



Failure



Failure



Failure



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Failure



Failure



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Failure



Failure



Failure



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Failure



Failure



Failure





Please glue to card before trimming out



Contaminated Sample

Impure samples can create false readings.



Immediately lose 2 Success tokens from your Projects, if possible.

Contaminated Sample

Impure samples can create false readings.



Immediately lose 2 Success tokens from your Projects, if possible.

Contaminated Sample

Impure samples can create false readings.



Immediately lose 2 Success tokens from your Projects, if possible.

Contaminated Sample

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Immediately lose 2 Success tokens from your Projects, if possible.

Disaster



Disaster



Disaster



Disaster



Action cards

Please use A4 duplex/double sided printing, one copy of each page (total = 2 x A4 sheets).
Please use the trim guides supplied

Action

Action

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Action

Action

Action

Effective collaboration

Working together on a project is always worthwhile.



Play before another player starts an experiment.

Gain as many Success tokens as they do. Place the tokens on Science icons that match the beamline.

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Effective collaboration

Working together on a project is always worthwhile.



Play before another player starts an experiment.

Gain as many Success tokens as they do. Place the tokens on Science icons that match the beamline.

Excellent reputation

Good science is rewarded by your peers.



Play on your turn.

Every other player gives you 1 Success token from their projects, if possible. Place the tokens on any Science icons.

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Excellent reputation

Good science is rewarded by your peers.



Play on your turn.

Every other player gives you 1 Success token from their projects, if possible. Place the tokens on any Science icons.

Salvaged experiment

Diamond has over 600 specialists who can help complete an experiment.



Play on your turn during an experiment.

Ignore 1 Failure icon.

Salvaged experiment

Diamond has over 600 specialists who can help complete an experiment.



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Salvaged experiment

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Play on your turn during an experiment.

Ignore 1 Failure icon.

Salvaged experiment

Diamond has over 600 specialists who can help complete an experiment.



Play on your turn during an experiment.

Ignore 1 Failure icon.

Vital work

Beamtime is booked up well in advance, but some is reserved for critical work.



Play on your turn.

Instead of your normal move, you may stay where you are or move to any other beamline, including one occupied by a Scientist.

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Action

Multidisciplinary skills

Different fields of science can shed light on any project.



Play on your turn, before you start an experiment.

You may place any Success tokens you gain this turn on any Science icons, not just those that match your beamline.

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Multidisciplinary skills

Different fields of science can shed light on any project.



Play on your turn, before you start an experiment.

You may place any Success tokens you gain this turn on any Science icons, not just those that match your beamline.

Get some rest!

Overwork or lack of sleep can impact progress.



Play before another player starts an experiment.

They can only draw 2 Experiment cards this turn.

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Overwork or lack of sleep can impact progress.



Play before another player starts an experiment.

They can only draw 2 Experiment cards this turn.

Caffeine hit!

Scientists can drink a lot of tea or coffee to help stay awake.



Play after another player's experiment.

They must draw 2 more Experiment cards.

Caffeine hit!

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They must draw 2 more Experiment cards.

Caffeine hit!

Scientists can drink a lot of tea or coffee to help stay awake.



Play after another player's experiment.

They must draw 2 more Experiment cards.

Inspiration strikes!

Scientific insight can come at any time.



Play on your turn.

Gain 1 Success token and place it on any Science icon.

Inspiration strikes!

Scientific insight can come at any time.



Play on your turn.

Gain 1 Success token and place it on any Science icon.

Inspiration strikes!

Scientific insight can come at any time.



Play on your turn.

Gain 1 Success token and place it on any Science icon.

Inspiration strikes!

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Play on your turn.

Gain 1 Success token and place it on any Science icon.

Project cards

Please use A4 duplex/double sided printing, one copy of each page (total = 3 x A4 sheets).
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Study a new
carbon capture
process



Develop better
fuels for cars



Investigate
better
solar panels



Design a
new
battery



Investigate
materials that
copy nature



Design a
new catalyst



Investigate
hydrogen storage
mechanisms



Develop a
cheaper type of
solar cell



Investigate the
degradation
of automotive
components



Elemental
analysis
of cement



Understand
the molecular
structure
of a compound



Discover a new
way to deliver
drugs



Test antibacterial
coatings for
medical devices



Create better
electronics



Investigate
corrosion



Improving
computers using
new types of
magnets



Design a new battery



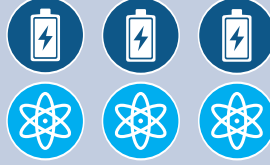
★ ★

Investigate better solar panels



★ ★ ★

Develop better fuels for cars



★ ★ ★

Study a new carbon capture process



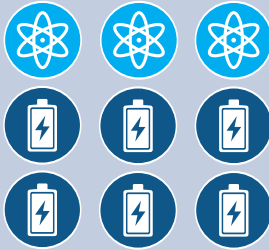
★ ★ ★ ★

Develop a cheaper type of solar cell



★ ★ ★ ★

Investigate hydrogen storage mechanisms



★ ★ ★ ★ ★

Design a new catalyst



★ ★

Investigate materials that copy nature



★ ★ ★

Discover a new way to deliver drugs



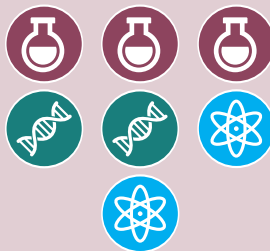
★ ★ ★

Understand the molecular structure of a compound



★ ★ ★ ★

Elemental analysis of cement



★ ★ ★ ★

Investigate the degradation of automotive components



★ ★ ★ ★ ★

Improving computers using new types of magnets



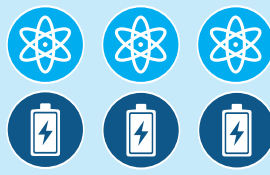
★ ★

Investigate corrosion



★ ★ ★

Create better electronics



★ ★ ★

Test antibacterial coatings for medical devices



★ ★ ★ ★

Investigate historical farming



Investigate preservation methods



Investigate new nuclear waste storage



Analyse compatibility of medical implants



Non-destructive imaging of artefacts



Aid artwork restoration



Developing a new technique to observe precious samples



Study extinct animals



Discover the atomic structure of a protein



Understand how insects fly



Observe shape of plant roots



Design a new vaccine



Investigate how disease spreads



Develop techniques for imaging cells



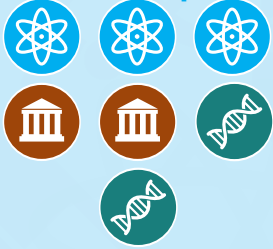
Investigate pollution



Learn how life could exist on other planets

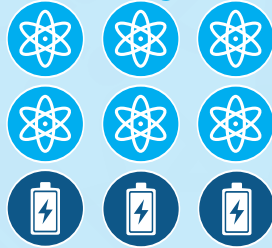


Analyse compatibility of medical implants



★ ★ ★ ★

Investigate new nuclear waste storage



★ ★ ★ ★ ★

Investigate preservation methods



★ ★

Investigate historical farming



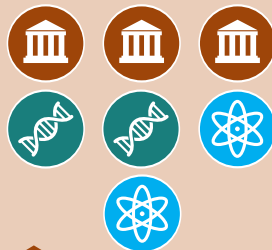
★ ★ ★

Study extinct animals



★ ★ ★

Developing a new technique to observe precious samples



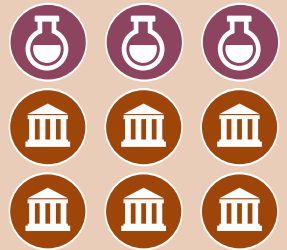
★ ★ ★ ★

Aid artwork restoration



★ ★ ★ ★

Non-destructive imaging of artefacts



★ ★ ★ ★ ★

Design a new vaccine



★ ★

Observe shape of plant roots



★ ★ ★

Understand how insects fly



★ ★ ★

Discover the atomic structure of a protein



★ ★ ★ ★

Learn how life could exist on other planets



★ ★ ★

Investigate pollution



★ ★

Develop techniques for imaging cells



★ ★ ★ ★

Investigate how disease spreads



★ ★ ★ ★ ★

Observe reactions inside a volcano



Study impact of modernisation on marine life



Understand how plants grow in toxic environments



Investigate rock formation in earth's crust



Scientist

Scientist

Scientist

Scientist

Scientist

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Scientist

Scientist

Scientist

Scientist

Scientist

Scientist

Investigate rock formation in earth's crust



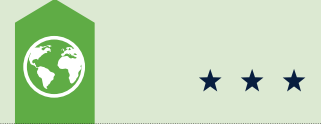
Understand how plants grow in toxic environments



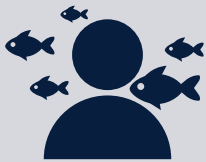
Study impact of modernisation on marine life



Observe reactions inside a volcano



Oceanologist



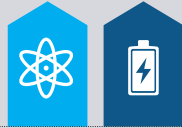
Your specialities are **Earth Science** and **Energy**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Aeronautical Engineer



Your specialities are **Energy** and **Physics**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Archaeologist



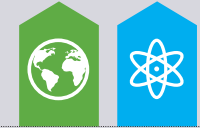
Your specialities are **Cultural Heritage** and **Chemistry**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Geologist



Your specialities are **Earth Science** and **Physics**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



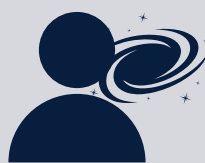
Chemist



Your specialities are **Energy** and **Chemistry**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



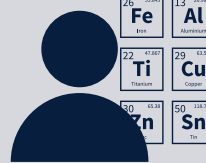
Astrobiologist



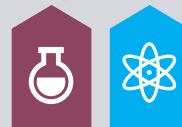
Your specialities are **Earth Science** and **Biology**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Metallurgist



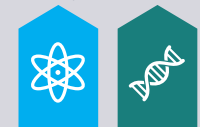
Your specialities are **Chemistry** and **Physics**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Surgeon



Your specialities are **Physics** and **Biology**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Volcanologist



Your specialities are **Earth Science** and **Cultural Heritage**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Paleontologist



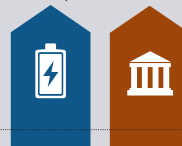
Your specialities are **Cultural Heritage** and **Biology**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Climateologist



Your specialities are **Chemistry** and **Cultural Heritage**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Pharmacist



Your specialities are **Biology** and **Chemistry**
Earn 1 bonus reputation for each Project you complete that matches one of your specialities.



Action cards



Effective collaboration

Play before another player starts an experiment.

Gain as many Success tokens as they do. Place the tokens on Science icons that match the beamline.



Excellent reputation

Play on your turn.

Every other player gives you 1 Success token from their projects, if possible. Place the tokens on any Science icons.



Salvaged experiment

Play on your turn during an experiment.

Ignore 1 Failure icon.



Vital work

Play on your turn.

Instead of your normal move, you may stay where you are or move to any other beamline, including one occupied by a Scientist.



Multidisciplinary skills

Play on your turn, before you start an experiment.

You may place any Success tokens you gain this turn on any Science icons, not just those that match your beamline.



Get some rest

Play before another player starts an experiment.

They can only draw 2 Experiment cards this turn.



Effective collaboration

Play after another player's experiment.

They must draw 2 more Experiment cards.



Inspiration strikes!

Play on your turn.

Gain 1 Success token and place it on any Science icon.



diamond

THE GAME

Print & Play Rules

2-5 PLAYERS • 20-30 MIN • AGES 10+

Created by;

Mark Basham, Claire Murray & Matthew Dunstan

www.diamond.ac.uk/Public/DiamondTheGame

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Tel: +44 (0)1235 778 639
www.diamond.ac.uk/Public/DiamondTheGame

Introduction

Diamond Light Source is one of the largest scientific research laboratories in the UK. Every year thousands of scientists come to do ground-breaking research in areas as diverse as drug design, renewable energy and studying conditions on other planets.

Inside Diamond's torus shaped building is a large particle accelerator called a synchrotron, which accelerates electrons at the speed of light, clockwise around a large ring. These electrons generate X-rays and other frequencies of light that go into a series of laboratories around the ring called beamlines. Each beamline is setup in a different way; typically this means some beamlines are more useful for certain fields of science.

In the game you will become a scientist, undertaking various scientific projects. Completing a project will require visiting Diamond's beamlines to do experiments, but be careful to visit a beamline equipped to do the experiments needed for your project. Completing projects will enhance your reputation as a scientist and the most famous scientist will win the game. But be aware, some projects are more prestigious than others, so it isn't always the scientist who completes the most projects who wins!

Good luck, and let's hope your experiments are successful!

Components



1 board



12 Scientist pieces (stick onto a coin)



50 Success tokens



12 Scientist cards

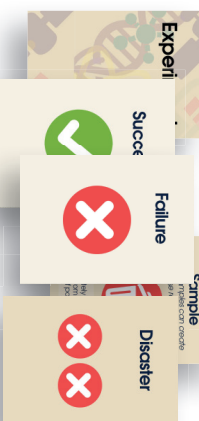


36 Project cards



24 Action cards

2



36 Experiment cards (20 Success cards, 10 Failure cards, 6 Event cards)

Completing a Project

If you cover up all of the Science icons on a Project card, the Project is complete. Put all the Success tokens back in the supply and flip the card over. Keep your completed Projects in front of you.

Now choose a new Project from the Project cards beside the board and place it face up in front of you. If there are no remaining Project cards, the game ends immediately.

3. Draw an Action card

At the end of your turn, draw 1 Action card from the deck.

Keep your Action cards hidden from the other players. There is no limit to the number of Action cards you can have. If the Action deck runs out, shuffle the discard pile to make a new deck. Each Action card explains when it can be played and what it does. Further information can be found on the back page.








End of the game

The game ends immediately when a player completes a Project and cannot take a new one. Everyone adds up how much reputation they have earned from their completed Projects:

- Earn 1 reputation for each star on your completed Project cards.
- Earn 1 bonus reputation for each completed Project with a scientific speciality that matches one of the two specialities on your Scientist card.
- Your incomplete Projects are not worth any reputation.

The player with the most reputation wins. If there is a tie, all tied players rejoice in their shared scientific achievements.

7

<p>Success</p> 	<p>Amazing Success</p> 	<p>Groundbreaking Discovery</p> 
<p>Failure</p> 	<p>Disaster</p> 	<p>Failure cards Each card has 1 or 2 Failure icons.</p>
<p>Breakthrough Some experiments are of wider benefit to all scientists.</p>  <p>Every player, including you, immediately places 1 Success token from your Project card that matches your beamline, if possible.</p>	<p>Contaminated Sample Impure samples can create false readings.</p>  <p>Immediately lose 2 Success tokens from your Project, if possible.</p>	<p>Event cards There are two events, called 'Breakthrough' and 'Contaminated sample', that interrupt your experiment.</p> <p>Breakthrough card: Every player, including you, immediately places 1 Success token on a Science icon that matches your beamline, if possible.</p> <p>Contaminated sample: Immediately lose 2 Success tokens from your Project, if possible.</p> <p>After you resolve an event, you may continue your experiment.</p>

Your experiment is a success if you stopped drawing before you revealed 2 Failure icons. Gain as many Success tokens as the number of Success icons you revealed.

Your experiment is a failure if you revealed 2 Failure icons. Gain a number of Success tokens equal to half the number of Success icons you revealed, rounded down.

When you gain Success tokens, place them onto uncovered Science icons on your Project cards that match your current beamline space.

Getting ready

- 1 Lay the board in the middle of the play area.
- 2 Put the Success tokens in the middle of the board as a common supply.
- 3 Shuffle the Scientist cards:
 - Deal each player 2 Scientist cards.
 - Everyone chooses 1 Scientist card to keep.
 - Put your Scientist card face up in front of you.
- 4 Everyone takes the Scientist piece that matches their Scientist card.
- 5 Shuffle the Project cards:
 - Deal each player 3 Project cards.
 - Everyone chooses 2 Project cards to keep.
- 6 Deal out the following number of Project cards face down beside the board (with the little science icons hidden):
 - 2 players: 3 cards
 - 3 players: 5 cards
 - 4 players: 6 cards
 - 5 players: 7 cards
 Put aside all the unused Scientist cards, Scientist pieces and Project cards.
- 7 Shuffle the Action and Experiment cards separately and place the decks face down on the board in their marked spaces.

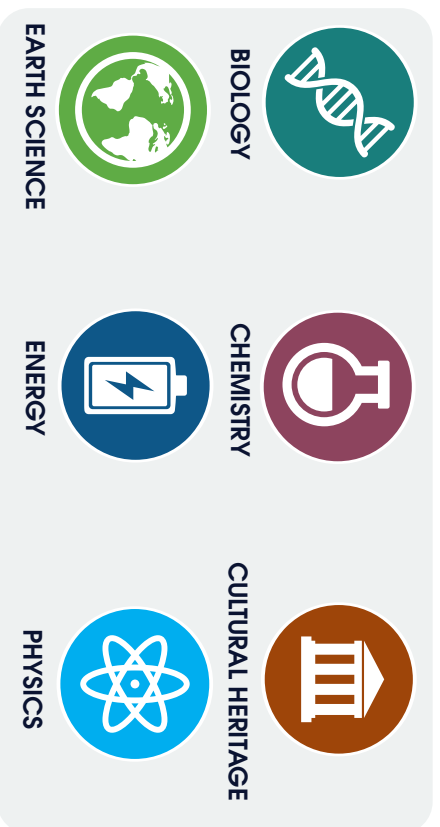


Aim of the game

Use the Diamond facility to perform experiments in the six different fields of science that will help you complete your scientific projects. Gain reputation for every project you complete. At the end of the game, the player with the most reputation wins.

About Scientists and Projects

Each Scientist has 2 of the following 6 specialties: Biology, Chemistry, Cultural Heritage, Earth Science, Energy, and Physics.



Each Project has a mix of Science icons, a single specialty, and a number of stars that represent the reputation the Project is worth if you complete it. You will also earn 1 bonus reputation for each completed Project that matches one of your Scientist's specialties.



4

How to play

The player who last made a scientific observation starts the game. Players then take turns clockwise. On your turn, do the following things in order:

1. Move your Scientist
2. Perform an experiment
3. Draw an Action card

1. Move your Scientist

On your first turn, place your Scientist on any unoccupied beamline space.

On all later turns, you must move your Scientist 1, 2, 3 or 4 spaces clockwise around Diamond to a new beamline space. You can't stay in your current beamline space, and you can't move to a space occupied by another Scientist.

2. Perform an experiment

If you do not have any uncovered Science icons on your Project cards that match the icons on your beamline space, skip this step.

To perform an experiment, draw and reveal cards from the Experiment deck one at a time. After each card, you can decide to stop or to reveal another card. If the deck runs out, shuffle the discard pile to make a new deck.

The deck contains Success, Failure and Event cards. The more Success icons you reveal, the more Success tokens you can gain. If the experiment is a success, but if you reveal a total of 2 or more Failure icons, your experiment fails!

5

