INTERPLANETARY
A GIANT HOP FOR SQUEAKIND

DESIGNED BY ELIAS HEYDRICH   FOR THE SOLO ENTHUSIAST
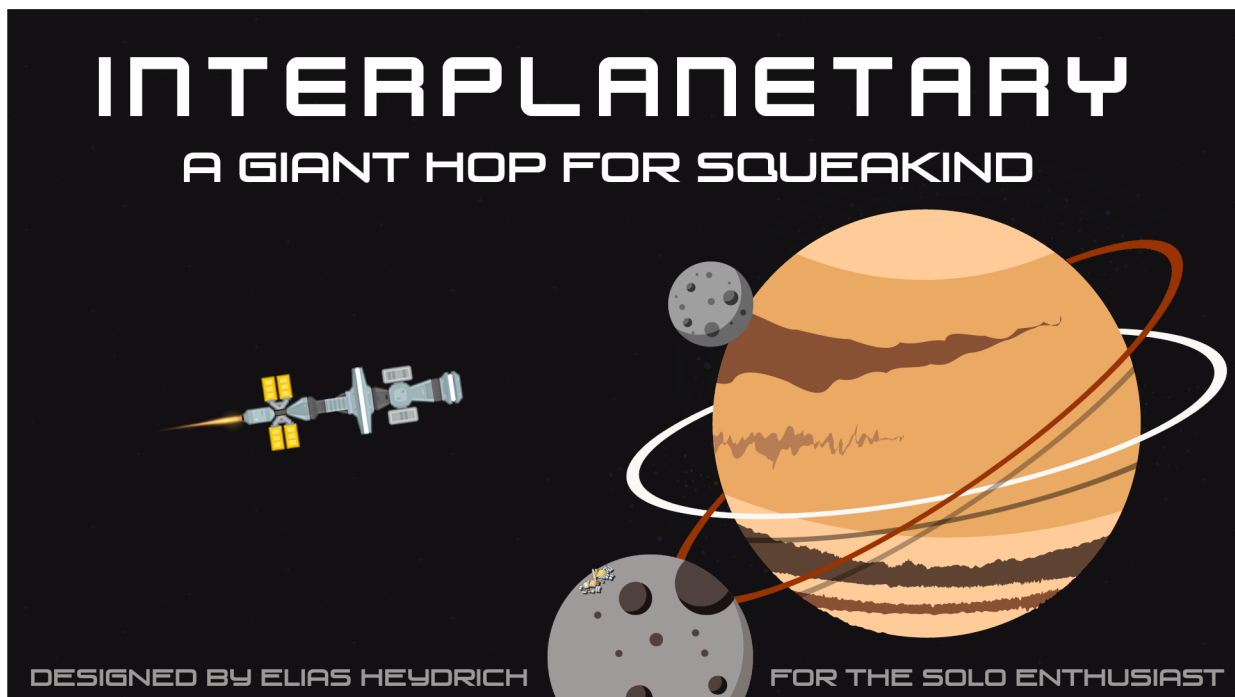
Billons watched the live global broadcast of the first Squeak hopping on the Mun over 50 years ago. Now, the various nations on planet Tree have finally come together as the United Forests and have created a planet-wide space program to peacefully explore our solar system and go where no Squeak has gone before.

Send probes into the void, design never-before seen spacecraft and put our people's adorable little paws onto the surface of other worlds. Construct research outposts, research new technologies and maybe, just maybe make startling discoveries out on the final frontier and usher in a new era for all of Squeakind!
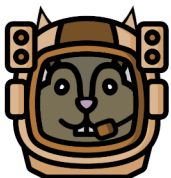
GREETING, BOSS! I AM COMMANDER CHESNUT, ONE OF THE ASTROSQUEAUTS IN OUR NEW SPACE PROGRAM. THIS MANUAL WILL BRIEF YOU ON EVERYTHING YOU NEED TO KNOW WHILE I WILL PROVIDE YOU WITH HELPFUL TIPS.

PRINTING INSTRUCTIONS

Interplanetary is a print & play game, which means you have to print out the game's board and cards yourself. Furthermore, you must also provide some typical board game components (like dice and cubes) to experience this game.

All printed components of *Interplanetary* are double-sided ones and all files follow the same common format: **Uneven pages are fronts, even pages are backs.** Using sheets of paper in ISO 216 A4 format is recommended, but centering and scaling files will make them work on any format, as long as you do it consistently. You should first print all uneven pages (1, 3, 5, ...) of each PDF on thick sheets of paper. Afterwards, print all even pages (2, 4, 6, ...) on the backside of the same sheets (or use glue), which then results in the correct double-sided components.

A test-page has been provided if you need to experiment with your printer's capabilities (e.g. its minimum paper margins), which is recommended.
Finally, read **page 5 of this rulebook before laminating any components!**
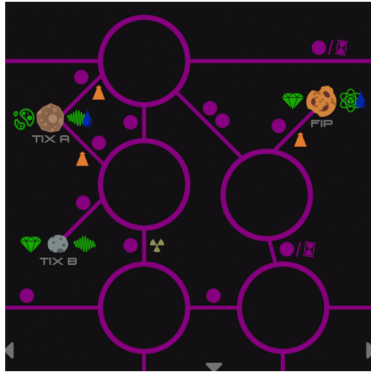
TABLE OF CONTENTS

DON'T PANIC! YES, THESE ARE A LOT OF RULES BUT THIS DOCUMENT AS BEEN DESIGNED TO BE AS HELPFUL AS POSSIBLE, SO BEAR WITH ME AND CONTINUE TO READ...
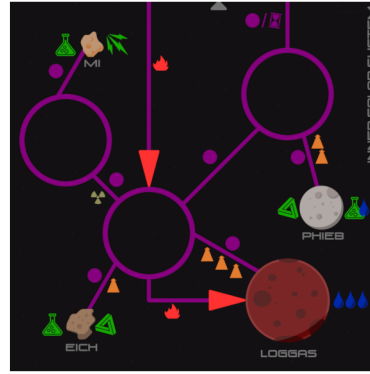
FULL COMPONENT OVERVIEW

8× INTERPLANETARY

8× PLANETARY
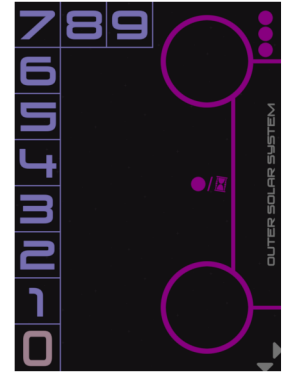
3× NON-SQUARE
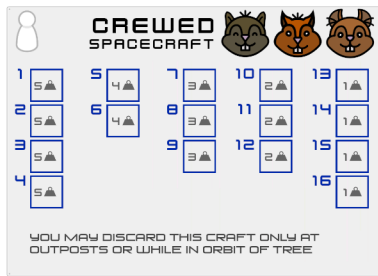
2× CRAFT
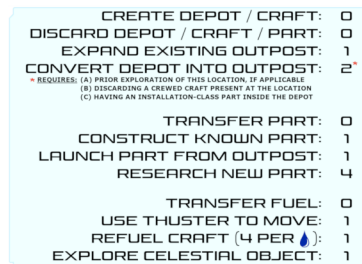
1× SUMMARY
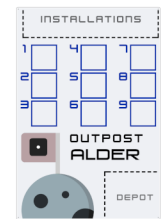
4× OUTPOST
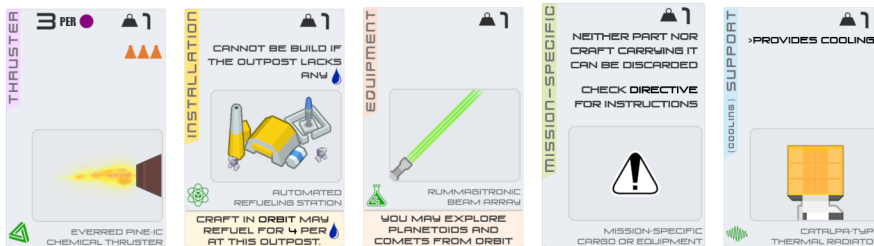
34× PART (IN 5 DIFFERENT CLASSES)

19× DIRECTIVE

2× MEEPLE 31× CUBE 1× COIN

PROVIDED BY YOU
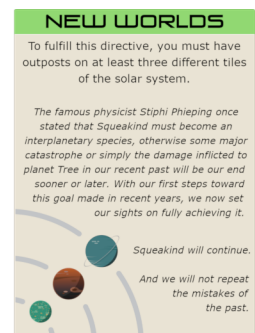
4× SIX-SIDED DIE
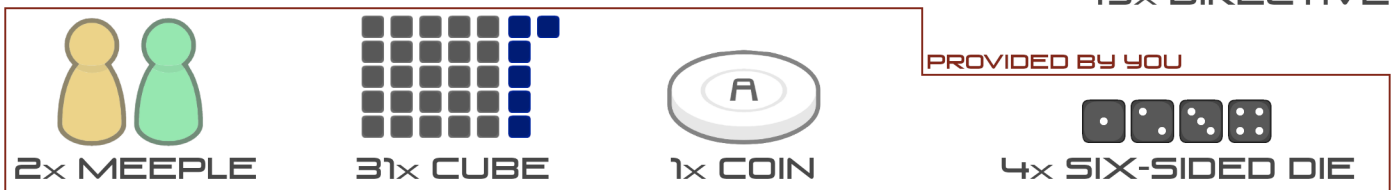
SUBSTITUTING COMPONENTS:

You typically do not require the maximum amount of cubes during normal play. Playing with less cubes is usually fine, so do not worry if you do not have enough, the numbers listed above are based on a purely theoretical maximum.

Cubes are used to hide **discoveries**, the little green symbols on the **tiles**, as well as tracking **fuel** inside space**craft** or stored in **depots**. While the game's cards have been designed with cubes in mind, using some substitute is possible.

The dice serve as "numbered meeples" only and are placed on **tiles** to indicate the positions of your 4 **outposts**. Any other small numbered piece will also work.

Finally, the coin is only used to randomly decide between two options, hence any other method (like rolling a die) will do just fine if you do not like to flip a coin.

NECESSARY COMPONENTS

You will need to provide the following components to play this board game:

- 31 small cubes, recommended are 6mm wooden cubes with 25 in black and 6 in blue
- 4 six-sided dice (numbers 1 to 6), recommended are 11mm black dice with white dots
- 2 small meeples of different color
- 1 coin with two distinct sides, which is heavy enough to conveniently flip

TILE COMPONENTS OVERVIEW

The game's board consists of several types of **tiles**, all of which show purple circles and lines. The lines are called **transitions** and if some of them go over a **tile**'s top edge, like on the **tile** on the right, that **tile** is a **planetary tile**.

Planetary tiles belong either to the **inner** or the **outer** solar system, which is specified in each's upper right corner.

Now, in contrast to the **planetary tile** seen above, the **transitions** on the **tile** to the left go over its bottom, left and right edges. This makes it an **interplanetary tile**.
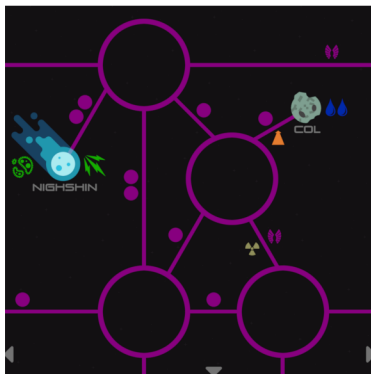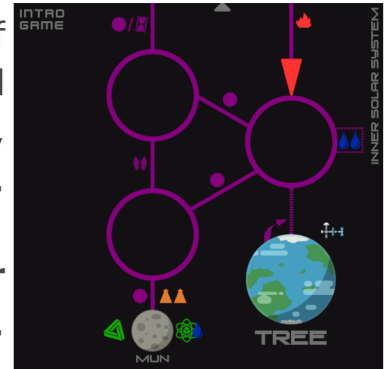
Also note that an **interplanetary tile** does never show any text in its upper right corner (it is neither **inner** nor **outer**).

Overall, you should have 16 <u>square</u> **tiles**:
8 **planetary** and 8 **interplanetary** ones.

Each of these **tiles** is a double-sided square, with its back side showing a very similar variant of the front. However, note that only one side shows 💀 - symbols in its upper left corner, indicating that this is the more **difficult** side of the two.

NOTICED THAT SOME WORDS HERE ARE IN **BOLD** FONT? THIS MEANS THAT SUCH A WORD IS A TERM, REFERRING TO A SPECIFIC GAME CONCEPT, LIKE A **PLANETARY TILE**. THE INDEX ON PAGE 34 LISTS ALL OF THESE TERMS.

While all of the **tiles** above are square-shaped, there are also three non-square ones, all of which are displayed on the right. From left to right, these tiles are the **track tile**, the **sol tile** and finally the **special tile**.
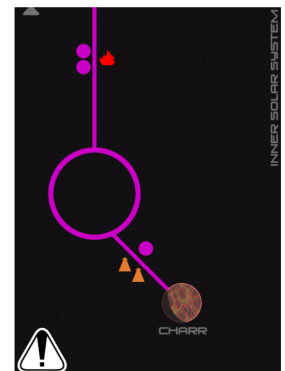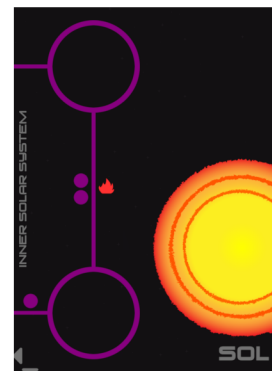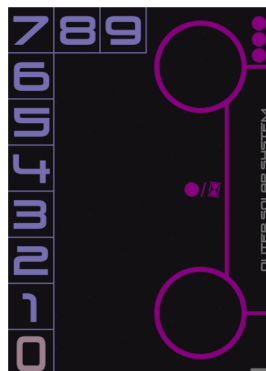
The ⚠ - symbol indicates that a component is related to a **directive** (see page 13). Of the three non-square **tiles** shown above, only the **special tile** shows this symbol on both sides. **Track** and **sol tile** only have a "special back" so to speak.

CARD COMPONENTS

The most common type of card is the **part**, with 2 of the 34 cards overall shown on the right as an example. Each **part** belongs to a specific **class** of **parts**, indicated in its top left corner. Here, these **classes** are **thruster** and **installation**. A **part** card's back shows an **advanced** version of that **part**.
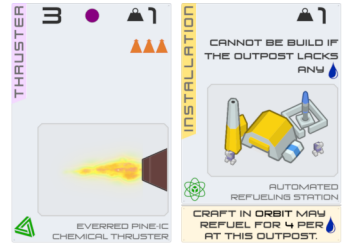
The second most common type of cards are the **directives**. Such a card always specifies a goal that must be achieved, explained in its upper half. A **directive**'s lower half, that is the text written in *italics*, never has any gameplay-relevant effects. Note that each of the 19 **directives** belongs to one of six **acts**, specified on each card's backside in roman letters (like **act V**).

The next type of card, seen on the right, is a space**craft** card, of which there are only 2 in the entire game. After printing your copy of *Interplanetary*, color the white meeple in the top left corner on both front and back sides of these card to match one of your chosen meeples each.

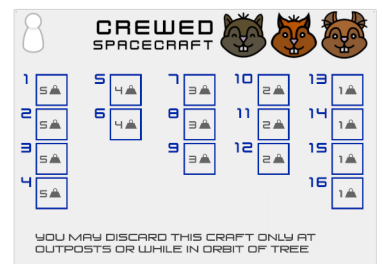SO, IF YOU WANT TO USE A GREY AND A BLACK MEEPLE, YOU SHOULD HAVE ONE GREY **CRAFT** AND ONE BLACK **CRAFT**. REMEMBER TO COLOR BOTH SIDES OF A CARD!
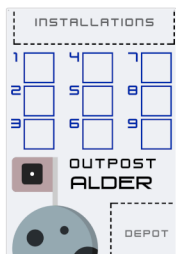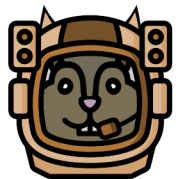
Up next: the card on the left is called an **outpost** when on this side. When flipped on its back, is called a **depot** instead. There are 4 of these cards, each associated with a specific die face. *Outpost Alder* for instance is linked to the face value 1, as indicated on the card's flag.

Finally, the *Action Summary*: this singular card exists for convenience only, presenting you with a quick summary of all **actions** in the game, as well as their **costs**. With similar intent, a short explanation of the game's two types of **bonus** effects is given on the *Summary*'s backside.

AGAIN - DO NOT PANIC!

At this point, you already came across a lot of terms and things to remember.

No need to worry, the purpose of this detailed listing is only to provide you with a high-level overview of all your printed components, front- and back. The main intention is to allow you to verify that you have everything you need and that all components are in order. Since everything used to play *Interplanetary* is double-sided, building this game correctly is no trivial task.

ABOUT THE GAME:

In *Interplanetary*, you are faced with the challenge of spearheading Squeakind's peaceful exploration of space as head of the *Exploratory Branch* of the *United Forests' Space Program*, going where no Squeak has gone before!

You will plan and execute missions to other celestial bodies (like **planets**) and build **outposts** there, furthering Squeakind's understanding of the cosmos. As a result, new technologies in the form of **advanced parts** will become available, which will then open up even more distant **planets** for exploration.

This is a pure solo experience, that means this is a board game played exclusively by a single person (unless you use expansion 2 or 3). Your goal is to complete each session of *Interplanetary* with the highest score possible and once you no longer feel challenged, you can choose to advance to the next **difficulty level**.

> THE FUN IN SOLO-GAMING COMES FROM DOING WELL, "BEATING" THE GAME OR GETTING A REALLY HIGH SCORE. WITH NOBODY AROUND, YOU CAN ALWAYS CHEAT BUT THEN YOU ARE ONLY DENYING YOURSELF THE FUN PART.

THE HALL OF FAME:

Record your achievements in this table:

NAME	DATE	DIFFICULTY	SCORE	EXPANSIONS ?	NOTES

SETUP 1 - THE SOLAR SYSTEM

Setting up a new session of *Interplanetary* consists of multiple steps, the most complicated being the very first. The result of this first step is depicted further down below, while a full game after setup is shown on page 9. So, setup phase 1:

1.) Prepare the square tiles

Sort all 16 square **tiles**, dividing them into **inner planetary**, **outer planetary** and **interplanetary tiles**. Make sure that no **tile** shows a 💀 - symbol (flip it).

2.) Lay out the (square) planetary inner tiles

Take the **inner planetary tile** showing planet *Tree* and place it in the center of your play area, within your reach. Shuffle the other 3 **inner planetary tiles** and place 2 of them to the right of the **tile** showing *Tree*, forming an horizontal row. Ensure no **tile** is rotated, each must have upward **transitions** leaving the **tile**.

3.) Lay out the (square) planetary outer tiles

Shuffle all 4 **outer planetary tiles**, then expand the existing horizontal row to the left by placing 3 of the **outer tiles** there. Also ensure none is rotated.

4.) Lay out the (square) interplanetary tiles

Shuffle all 8 **interplanetary tiles** and then place 6, one above each **planetary tile** on the table, creating a second row above the existing one. Again, check that no **tile** is rotated, the **transitions** from the row below should align now.

All remaining un-placed square **tiles** are not needed for playing this session.

5.) Lay out non-square tiles

Place the **sol tile** to the right of the top row and the **track tile** on its left side. If you did everything correctly, your **transitions** now form a "closed circuit".
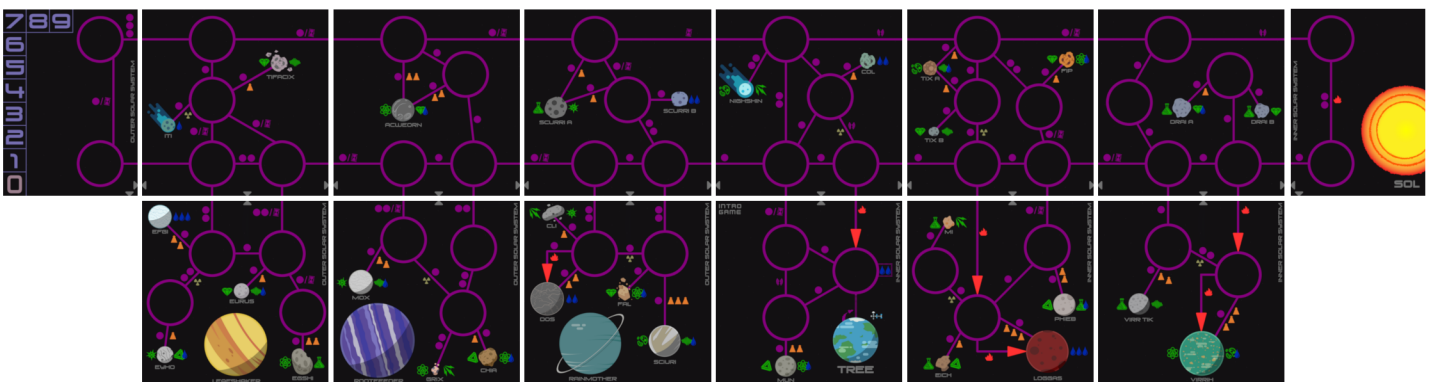
Set aside the **special tile**, it might enter play near the end of the game.

6.) Choose a difficulty level

If playing your very first game, skip this step (you will play the *INTRO GAME*).

Otherwise, flip the **tile** showing planet *Tree*, so that it has one 💀 in its top left corner. Afterwards, you may flip any vertical or horizontal neighbor of any **tile** showing at least one 💀 until the desired **difficulty level** is reached.

SETUP 2 - THE PARTS

After creating the solar system, the **part stacks** and **known parts** are next.

1.) Prepare the parts

Set aside the <u>one</u> **part** card belonging to the **mission-specific class**, it is only relevant for some **directives** later in the game (referred to as **special part**). Ensue that none of remaining 33 **part** cards shows *ADV. PART* in its lower left corner (flip it). Next, sort these **part** cards by **class**, creating 4 separate **stacks** containing **thruster**, **equipment, support** and **installation parts** respectively.

2.) Define the known parts

Afterwards, you need to shuffle each **stack** of **parts** individually. Then take the top card of the **thruster**, **installation** and **equipment stack**, placing each one in front of you. These three **parts** are now **known parts** (details on page 21).

3.) Split the thruster stack

Take half of the **thruster stack** (5 of 10 cards) and form a second **thruster stack** besides the first one. Ensure you are only aware of the (visible) top cards.

> WHEN I WAS YOUNG, I ALWAYS GAZED AT THE STARS ABOVE ME WHILE SPLITTING THE PART STACKS, DREAMING OF BECOMING AN ASTROSQUEAUT ONE DAY... - AHEM - ...JUST AVOID PEEKING. JUST COUNTING THE CARDS TO SPLIT A STACK WORKS BEST!

4.) Split the installation stack

Take half of the **installation stack** (4 of 8 cards) and form a second **installation stack** besides the first one. Again, be sure not to peek.

5.) Commit to playing with these stacks

If this is your first game, just skip this step. Now, you must decide if you want to play with this initial **part**-state. If not, go back to step 1 above. You can repeat the part setup phase as often as you want before continuing but you must perform all 5 steps each time. When done, place all **part stacks** above the **tiles**.

SETUP 3 - THE CAMPAIGN DECK

Next, you must form the **campaign deck** from the **directive** cards.

1.) Prepare the directives

Take all **directive** cards (19 in the base game), flip them face-down and sort them by **act**, creating 6 different sets of cards. Shuffle each set individually.

2.) Create the campaign deck

First, take 1 card from the **act II**, **act IV** and **VI** sets and take 2 cards from all other **acts**. From these 9 cards overall, you now create the **campaign deck** by placing the cards on top of each other ordered by **act**, that means you form a deck with the two **act I** cards on top, below that the one **act II** card and so on.

Place the resulting **campaign deck** somewhere near the **tiles** representing the solar system. Then, set aside all unused **directives** without ever revealing them.

SETUP 4 - FINAL PREPARATIONS

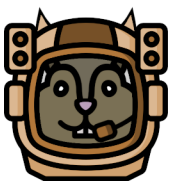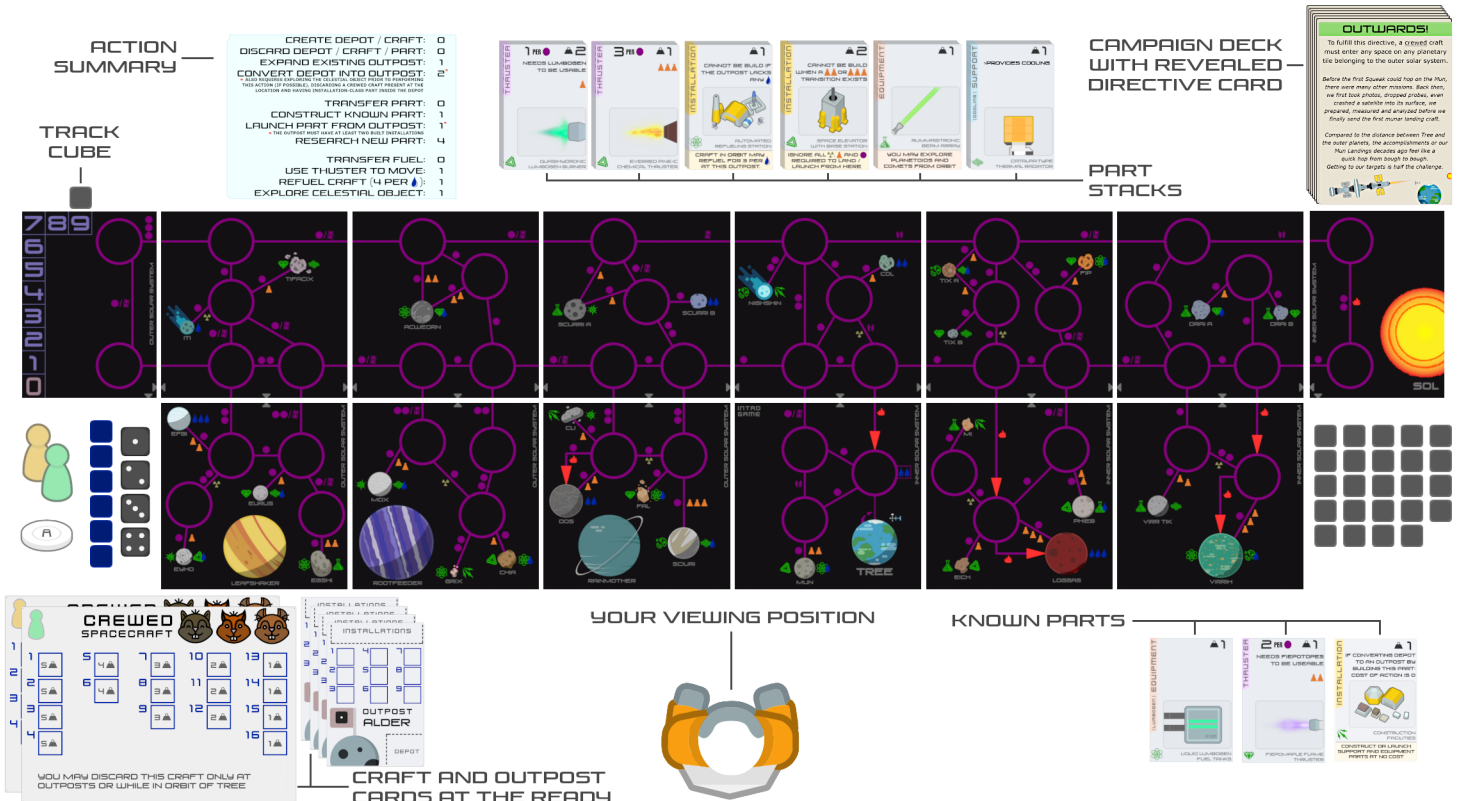You are almost done. Only three small steps remain until you can play!

First and foremost, you must reveal the top card of the **campaign deck,** placing that **directive** card face-up on top of that deck.

Secondly, ensure that all components are close by, not just the 6 **part stacks**. While playing you will make use of componets like **craft** and **depot** cards, as well as the coin, the dice, the meeples, the cubes and the **special tile** and **part**.

Finally, place one cube next to the **track tile**, near the *number 9* section. This single cube there is called the **track cube** for obvious reasons.

ACTION SUMMARY

CREATE DEPOT / CRAFT:	0
DISCARD DEPOT / CRAFT / PART:	0
EXPAND EXISTING OUTPOST:	1
CONVERT DEPOT INTO OUTPOST:	2*
TRANSFER PART:	0
CONSTRUCT KNOWN PART:	1
LAUNCH PART FROM OUTPOST:	1
RESEARCH NEW PART:	4
TRANSFER FUEL:	0
USE THRUSTER TO MOVE:	1
REFUEL CRAFT (4 PER):	1
EXPLORE CELESTIAL OBJECT:	1

TRACK CUBE

CAMPAIGN DECK WITH REVEALED DIRECTIVE CARD

PART STACKS

YOUR VIEWING POSITION

KNOWN PARTS

CREWED SPACECRAFT

CRAFT AND OUTPOST CARDS AT THE READY

NOTE THAT THE **SPECIAL PART** AND **TILE** (⚠) ARE NOT DEPICTED, BUT CLOSE BY... AND REMEMBER: YOUR SOLAR SYSTEM **TILES** AND **PART STACKS** WILL LOOK SOMEWHAT DIFFERENT SINCE **TILES** AND CARDS GET RANDOMIZED.

GAMEPLAY OVERVIEW:

The game is driven entirely by you, there are no turns. You play as follows:

You select and perform one of the available **actions** and you pay for it by moving the **track cube** by an amount equal to the **cost** of that **action**. After each such **action**, you check if you have **fulfilled** or **failed** the current **directive**, if any such card is in play. Then, you repeat that process.

Your goal, overall, is to **fulfill** as many **directives** as possible before the game ends, as these have the biggest effect on your overall score (see page 30).

The rest of this rulebook first explains the solar system in detail, then explains how **actions** and **directives** work and finally, each of the possible **actions**.
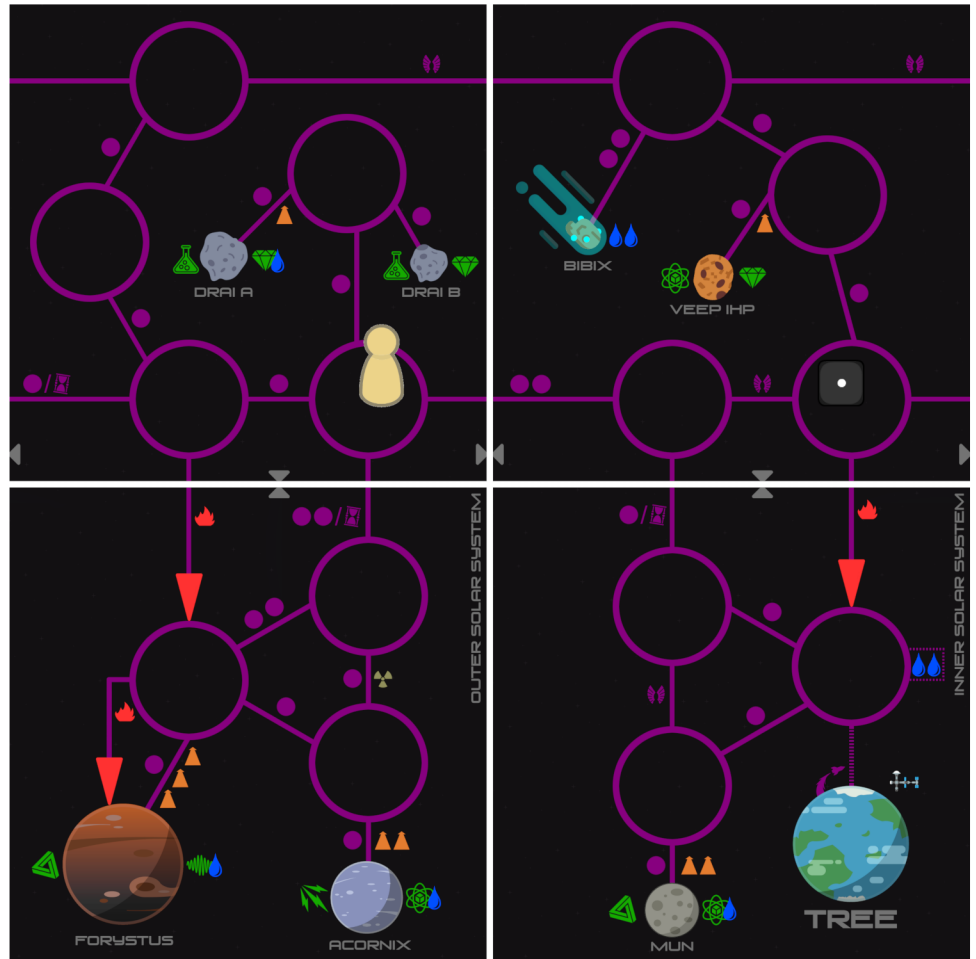
ABOVE ME, YOU CAN SEE A LIMITED SECTION OF THE TABLE, DEPICTING A TYPICAL GAME SITUATION. SINCE THE FULL SOLAR SYSTEM IS SO BIG, MOST EXAMPLES ON THE FOLLOWING PAGES USE SUCH SIMPLIFICATIONS.

Both purple circles and celestial objects (like *Forystus* and *Acornix* on the lower left **tile**) are **spaces**. All purple lines between such **spaces** are **transitions**. Using these **transitions**, a **craft** represented by its associated colored meeple is able to move from one **space** to another (explained on page 25 and following).

Every **transition** can have **requirements**, which a **craft** must satisfy to move over it. Using a **transition** can require any number and combination of ● **burns**, 🔺 **thrust**, 🔥 **heat-** or ☢ **radiation-shielding**, each of which is indicated next to the purple line of the **transition** itself using some amount of these symbols. Burn symboles can also appear as alternatives to one another, like this: ●/⧗ . Note that the ⧗ - symbol indicates that a **craft** can only take this **transition** at a particular time during its **movement action** (all explained in detail on page 25). Finally, if no **burns** are required at all, the 🪶 - symbol is used to clarify this fact.

While most **transitions** can be used to move back and forth between two **spaces**, a few ones can only be used in a single direction! This is indicated by a big red arrow tip defining the only allowed destination **space**. A **craft** may enter e.g. the lower **tiles** above using *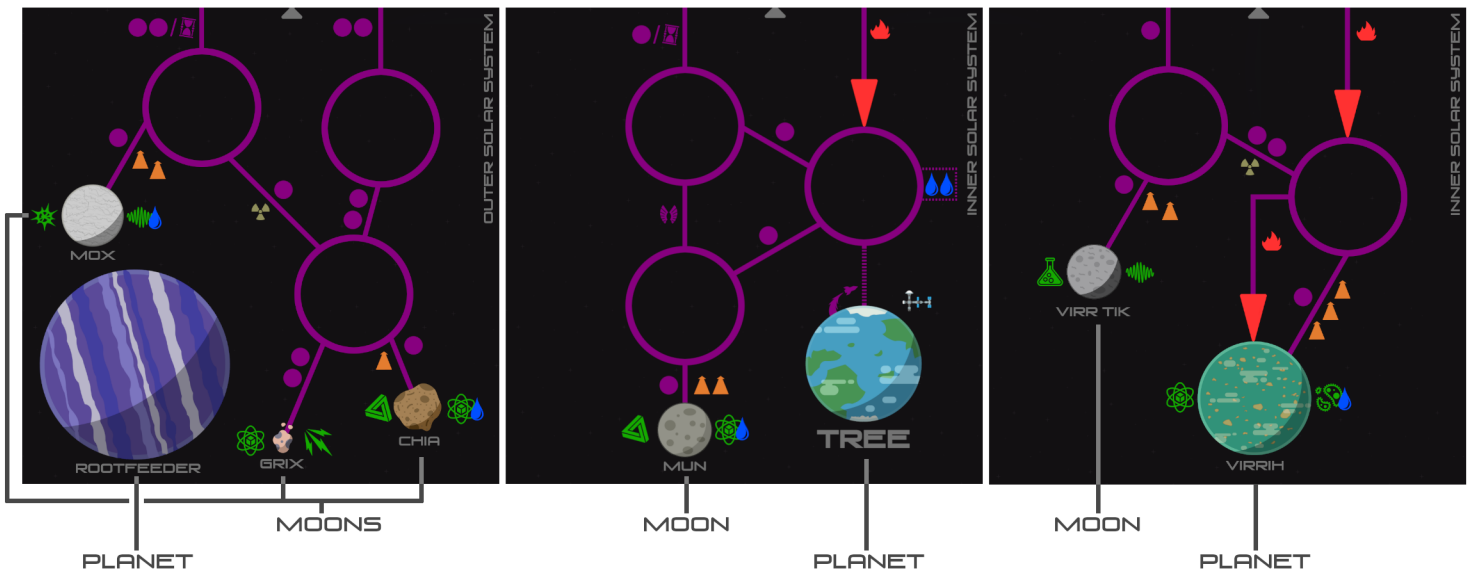*transitions** that require **heat-shielding** (🔥) but cannot use those same **transitions** to leave such a **tile** later.

NOW, IS TIME WE TAKE A LOOK AT THE ACTUALLY INTERESTING BODIES IN OUR SOLAR SYSTEM... PLACES WHERE WE WANT TO GO TO, THE CELESTIAL OBJECTS!

Purple circles **spaces** represent stable trajectories around the various celestial objects of the solar system. These celestial objects themselves come in four variants: **planets** and **moons**, as well as **planetoids** and **comets**.

The two former, **planets** and **moons**, only appear on **planetary tiles**: The biggest object on the **tile** is that **tile**'s **planet**, every other celestial object on that **tile** is called a **moon** of that **planet**.


OUTER SOLAR SYSTEM

MOX

ROOTFEEDER   GRIX   CHIA

MOONS

PLANET

INNER SOLAR SYSTEM

TREE

MUN

MOON

PLANET

INNER SOLAR SYSTEM

VIRR TIK

VIRRIH

MOON

PLANET

NOTE THAT NOT ALL **PLANETS** ARE REACHABLE, AS SOME LACK A **TRANSITION**. BUT SINCE NOTHING SURVIVES THE IMMENSE PRESSURE OF A GAS GIANT LIKE *ROOTFEEDER* ON THE LEFT, WE DO NOT WANT TO GO THERE ANYWAY...

TIFACIX

ITI

Planetoids and **comets** on the other hand only appear on **interplanetary tiles** and are easy to distinguish: **comets** like *ITI* on the left have a bluish tail, while **planetoids** like *TIFACIX* have no such tail. Distinguishing the different celestial objects is usually not relevant during normal gameplay, all four types are still simply **spaces**. However, some **directives** ask you to **land** on specific object, like e.g. **moon**. A **craft** located on a celestial object has **landed** there.

Multiple **transitions**, usually options to **land**, may exist between two **spaces**.

Finally, if some purple circle **space** has at least a one **transition** that leads to a celestial object, that **space** is called an **orbit space** of that **celestial object.** This is relevant for some **actions** and other game effects, which can e.g. affect **craft** in **orbit** of some **outpost**. Note that **craft** can be in **orbit** around multiple celestial objects at the same time. For example, on the **interplanetary tile** above, the green **craft** in **orbit** of *ITI* is also **orbiting** *TIFACIX* and vice versa.
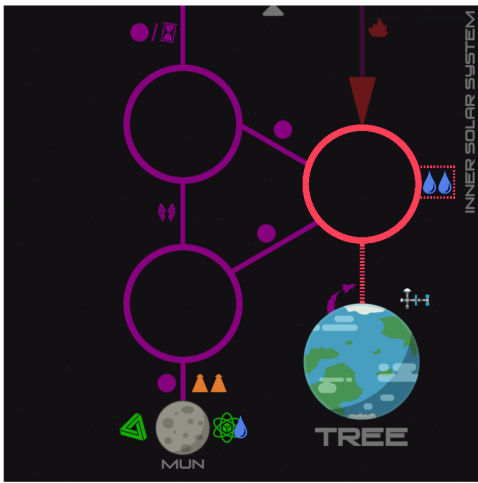
Planet *Tree*'s **orbit space**, here in red, is significant. Multiple **actions** are only possible on this **space** and it is the only place where the 💧 - symbol is present at an **orbit**, which represents Squeakind's spaceborne infrastructure. Consider this space your home base!

The dotted line towards planet *Tree*, the purple booster rocket and the little space station there are only reminders of that **space**'s special nature.

Note: You may not **land** a **craft** on planet *Tree*.

DO NOT BE CONFUSED: THE AMOUNT OF 💧 - SYMBOLS DIFFERS BETWEEN THE TWO SIDES OF THE *TREE* - **TILE**, AS DO THE SYMBOLS NEXT TO ITS **MOON**, THE *MUN*. IN FACT, ALL **TILES** FEATURE SIMILAR DIFFERENCES!
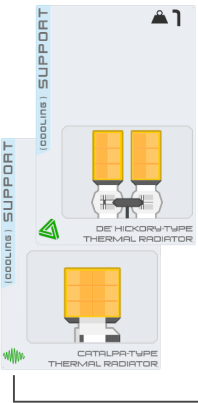
Next to some celestial objects, two green symbols are visible, sometimes with a 💧 - symbol present too (see the *Mun* above). These are called **discoveries** and they come in 8 different variants, each representing a **discovery** in a different field of the sciences. As long as both symbols of a location are visible, that celestial object counts as **unexplored** and it is thus not yet clear which **discovery** exactly can be found at this location. Through an appropriate **action** (see page 28), you are able to determine that either the left or the right set of symbols must be covered by a cube, thereby "discovering" the remaining set.

Note that **discovery** symbols also appear in the lower left corner on the **part** cards, which is relevant for **upgrading** that particular **part** during the game.

NOT ALL **DISCOVERIES** ARE AS COMMON AS OTHERS, SO DEPENDING ON THE SETUP OF THE SOLAR SYSTEM AND ON YOUR CURRENT **PARTS**, THE USEFULNESS OF ANY ONE **DISCOVERY** TYPE WILL BE DIFFERENT EACH TIME.

Finally, recall that the **interplanetary tiles** do not have a label stating **inner** or **outer** solar system in their upper right corner. Instead, after the setup phase, these **tiles** simply inherit that association from the **planetary tile** directly below them. Effectively, the entire left half of the solar system is the **outer** solar system and the right half is the **inner** one, as seen in the image below. This is relevant when using some **thruster-class parts** or **fulfilling** certain **directives**.
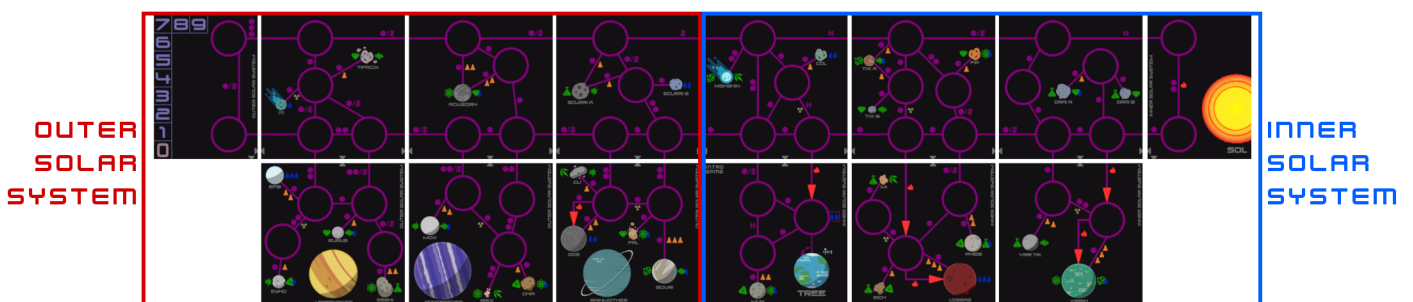
ACTIONS AND DIRECTIVES

THE RULES EXPLAIN ALL THE **ACTIONS** IN THE SAME ORDER AS THEY APPEAR ON YOUR SUMMARY CARD. AS A RESULT, A MORE COMPLICATED ACTION MIGHT BE APPEAR BEFORE A MORE BASIC ONE. JUST LET IT FLOW OVER YOU...

To play the game, you simply decide which **action** to take and <u>fully</u> execute that **action**. The following types of **actions** are available to you:

- **create depot / craft**
- **discard depot / craft / constructed part**
- **expand existing outpost**
- **convert depot into outpost**
- **transfer (constructed) part**
- **construct known part**
- **launch constructed part from outpost**
- **research new part**
- **transfer fuel**
- **use thruster to move**
- **refuel craft**
- **explore celestial object**

COST

CREATE DEPOT / CRAFT:	0
DISCARD DEPOT / CRAFT / PART:	0
EXPAND EXISTING OUTPOST:	1
CONVERT DEPOT INTO OUTPOST:	2*

* <u>REQUIRES:</u> (A) PRIOR EXPLORATION OF THIS LOCATION, IF APPLICABLE
(B) DISCARDING A CREWED CRAFT PRESENT AT THE LOCATION
(C) HAVING AN INSTALLATION-CLASS PART INSIDE THE DEPOT

TRANSFER PART:	0
CONSTRUCT KNOWN PART:	1
LAUNCH PART FROM OUTPOST:	1
RESEARCH NEW PART:	4
TRANSFER FUEL:	0
USE THRUSTER TO MOVE:	1
REFUEL CRAFT (4 PER 💧):	1
EXPLORE CELESTIAL OBJECT:	1

After fully executing any **action**, you must check if you have **fulfilled** the current **directive**, if any. The conditions to be satisfied are given on each **directive** card. In case these have been **fulfilled**, you flip the card face-down on the table and rotate it to *Directive fulfilled*. This is revelant for the **fulfillment bonus** and scoring later (see page 29). Note that after **fulfilling** a **directive**, you do <u>not</u> reveal a new one right away!

After finishing or skipping this **directive fulfillment** check, you must decrease the **track cube**'s value by your **action**'s **cost**. The **cost** of each **action** is listed on your summary card, as indicated above.

If you end up with a negative number (which the **track** cannot handle), you must add 10 to that value so the **track cube** ends back on the **track**. This is called a **reset** and each such **reset** triggers an update of the **campaign deck**:

- if there is currently no revealed **directive** card in play, simply reveal the top card of the **campaign deck** to provide you with a new **directive** card now.

- if there is a revealed **directive** currently on top of the **campaign deck**, take that card and place it next to the deck. This **directive** card remains in play and can still be **fulfilled** as normal, despite this position change.

- if the currently revealed **directive** is already located next to the **campaign deck** when **resetting** the **track cube**, you have now **failed** that **directive**: Flip this card face-down, rotate it to show *Directive failed*, then reveal the next card of the **campaign deck** immediately (unless the game is over).

LET'S LOOK AT AN EXAMPLE NOW: HERE, THE PLAYER HAS A **DIRECTIVE** (NEXT TO THE **DECK** BUT IN PLAY) WHICH DEMANDS THAT A **CREWED CRAFT** ENTERS A **PLANETARY TILE** BELONGING TO THE **OUTER** SOLAR SYSTEM. LET'S GO!

ACT II: SURVEY

DIRECTIVE FAILED

DIRECTIVE FULFILLED
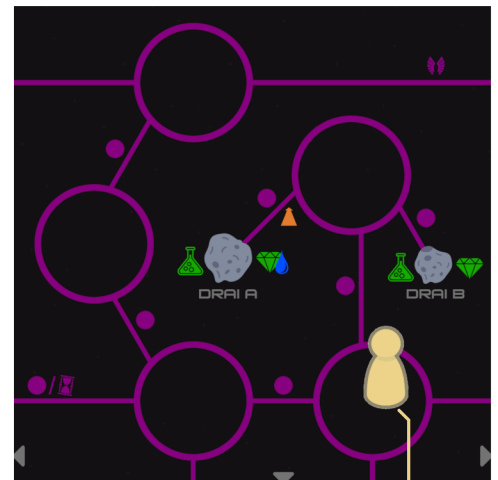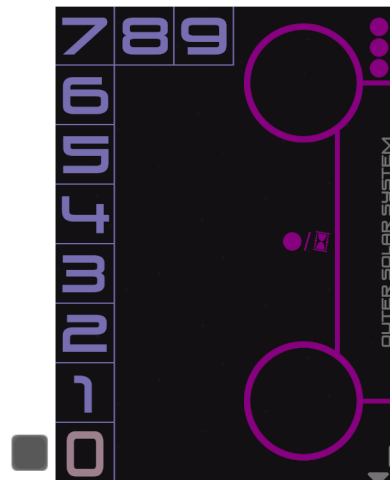
OUTWARDS!

To fulfill this directive, a crewed craft must enter any space on any planetary tile belonging to the outer solar system.

Before the first Squeak could hop on the Mun, there were many other missions. Back then, we first took photos, dropped probes, even crashed a satellite into its surface, we prepared, measured and analyzed before we finally send the first munar landing craft.

Compared to the distance between Tree and the outer planets, the accomplishments or our Mun Landings decades ago feel like a quick hop from bough to bough.
Getting to our targets is half the challenge.

OUTER SOLAR SYSTEM

DRAI A   DRAI B

CREWED SPACECRAFT

INSTALLATION
THRUSTER

1	5	7	11	2
2	5	8	
3	5	9	
4	5		

CANNOT BE BUILD IF THE OUTPOST LACKS ANY

2 PER ● | 1

DISCARD ONLY AT OUTPOST OR IN ORBIT OF PLANET T...

ADV. PART
FOCUSED NEM-NOOZLE PROPULSION ENGINE

OUTER SOLAR SYSTEM

FORYSTUS   ACORNIX
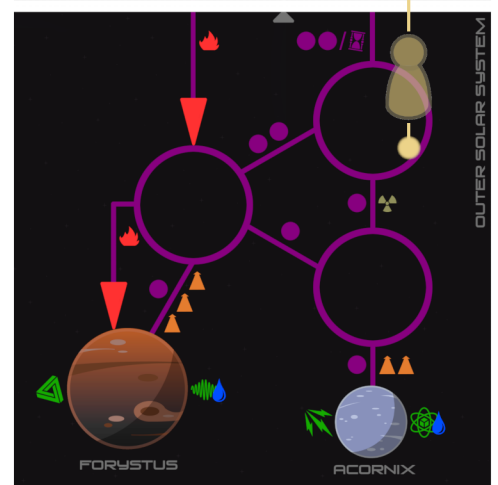
THE PLAYER CHOOSES THE **'USE THUSTER TO MOVE'** **ACTION** (SEE PAGE 25) AND **MOVES** THE **CRAFT** ONTO THE **TILE** SHOWING *FORYSTUS*. AFTERWARDS, WE CHECK THE **DIRECTIVE**: IT IS **FULFILLED**, THUS WE FLIP THE CARD!

SURVEY MISSION

While this directive is in play:
Ready the special part. When a crewed craft lands on any comet (*Bibix, Friya, Nighshin* and *Iti*), you may transfer the part to that craft.

To fulfill this directive, a craft carrying the special part must reach *Tree*'s orbit-space. Afterwards (or if the directive is failed) remove the special part from play.

The Organics Research Branch has issued a special request: They need us to extract a sufficiently large quantity of ice from one the larger comets in our solar system and then transport it back to Tree. All the details are in the file, good luck and fly safe.

DIRECTIVE FAILED

ACT I: EXPLORATION

DIRECTIVE FULFILLED
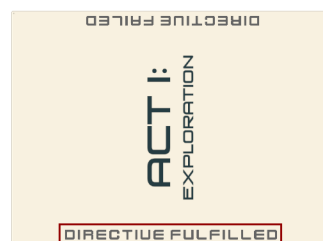
We fulfilled this directive!

OUTER SOLAR SYSTEM
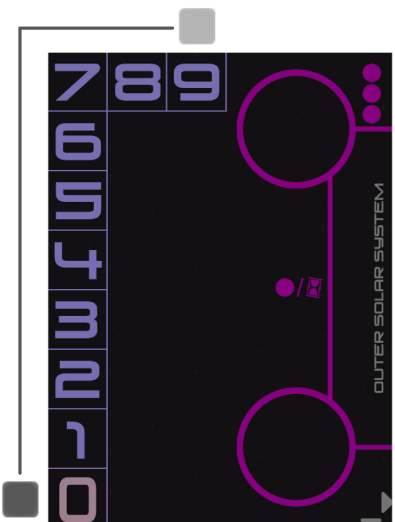
NEXT, WE MUST MOVE THE **TRACK CUBE**. AS THE **ACTION'S COST** IS 1, WE HAVE TO PERFORM A **CUBE RESET** AND THUS AN UPDATE OF THE **CAMPAIGN DECK**: WITH NO REVEALED **DIRECTIVE** IN PLAY, WE MUST REVEAL A NEW ONE NOW!

DIRECTIVE FULFILLMENT BONUS

As explained on page 13, you can **fulfill** or **fail directives**, which is relevant for scoring (see page 30). However, a select few **directives** also provide you with a so-called **fulfillment bonus**, which is listed next to the *Directive fulfilled* text on the card's backside. In this case, when **fulfilling** the **directive**, immediately follow the instructions printed below the *Directive fulfilled* text and claim the indicated reward before resuming normal play and paying for your **action**.

The fact that a **fulfillment bonus** will be issued is also indicated on the front side of such a **directive** card, which shows the 🎖️-symbol in its top right corner.

> THE FULFILLMENT BONUS OF ACT IV IS OFTEN A GAME-CHANGER, PROVIDING A MUCH NEEDED BOOST FOR THE LAST THIRD OF YOUR SESSION. WITH EXPERIENCE, YOU WILL BE ABLE TO FACTOR THIS INTO YOUR PLANS...

ACT VI - THE EPILOGUE DIRECTIVE

As explained on page 13, **directive** cards are either on the **campaign deck** or beside it. However, once you reveal the last card of that **deck**, the **act VI directive**, this is obviously no longer possible as there is no such **deck** anymore.

EXTRASOLAR

When this directive comes into play:
Immediately flip the track tile to reveal the *Sol Exit space.* In addition, add the special part to your known parts.

If this directive is fulfilled or failed, the **game ends** afterwards.
To fulfill this directive, an underlined craft carrying the special part must reach the *Sol Exit* space on the flipped tile.

In the vast emptiness between the stars, well outside of the oort-cloud surrounding the solar system, our telescopes will be able to search for other intelligent life far more efficiently. And each such probe will carry our message with it:

Instead, every time the **track cube** is **reset** while the **act VI directive** remains in play, you must rotate one of your **fulfilled directives** by 180 degrees to its **failed** side. Only once this is no longer possible, you have **failed** the **directive**. Effectively, this means that the available time to satisfy the final **directive** card's condition depends on how many prior **directives** you managed to **fulfill**.

Since the number of **fulfilled directives** is going to be relevant for endgame scoring (see page 30), doing badly during the epiloge can set you back considerably.

> ROTATING A DIRECTIVE THAT BESTOWED YOU WITH SOME FULFILLMENT BONUS HAS NO EXTRA CONSEQUENCE, YOU STILL KEEP THE BONUS YOU RECEIVED BACK THEN...
> SINCE IT DOES NOT MATTER WHICH FULFILLED DIRECTIVE YOU ROTATE TO ITS FAILED-SIDE, I USUALLY JUST STACK ALL THE DIRECTIVE CARDS THAT ARE NO LONGER IN PLAY AND SIMPLY START ROTATING THEM FROM THE TOP...

Aside from the fact that there is no more **campaign deck** and different rules for the **reset**, you can just play as normal during the epilogue. In particular, just follow the instructions printed on the **directive card** as normal. For **act VI**, this text will eventually end the game once this final **directive** has been **failed** or **fulfilled**. In both cases, remember to flip and rotate the **act VI** card at that time.

ACTION: CREATE DEPOT / CRAFT

Creating a **depot** or **craft** is a very simple **action** and its **cost** is 0, so it is effectively free. Remember that you need to check if the current **directive** has been **fulfilled** after every **action** though, no matter its **cost**.

CREATING A DEPOT:

Take an unused **depot** card of your choice, place it in front of you and directly place its associated die on a **space** in the solar system, including on any celestial object (like a **moon**). Placing multiple **depots** on a single **space** is allowed but do note that You are component-limited and the maximum number of **depots** in play is therefore just four at all times.
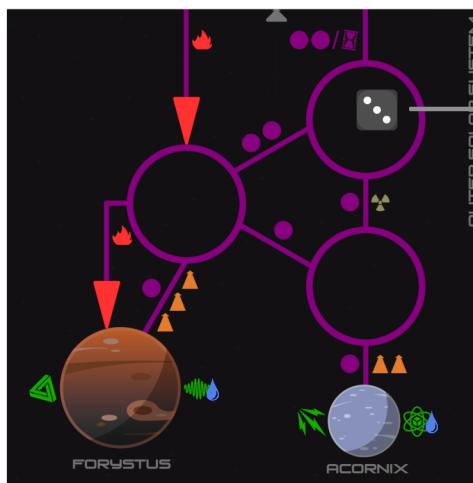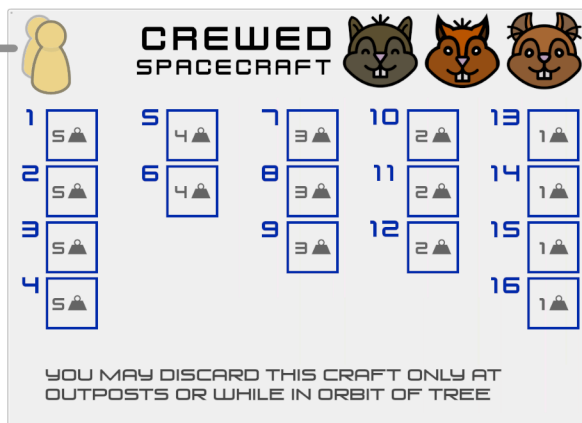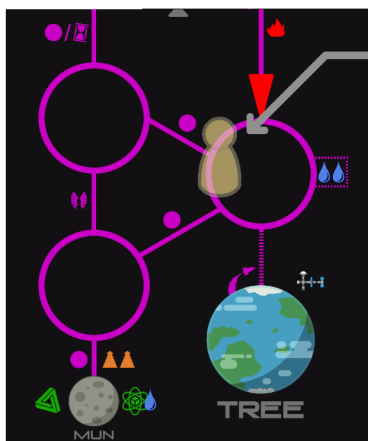
ASSOCIATED BY DIE VALUE

DEPOT CEDAR
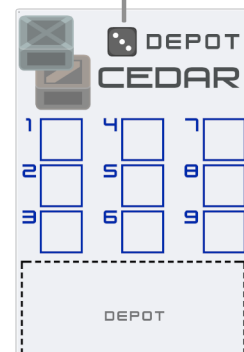
> YOU CAN CREATE A NEW **DEPOT** ANYWHERE, AT ANY TIME. IT IS JUST A LABEL FOR SOME LOCATION AFTER ALL, AN EMPTY **DEPOT** CONTAINS NOTHING YET. LATER HOWEVER, YOU CAN STORE **PARTS** AND **FUEL** THERE OR **CONVERT** A **DEPOT** INTO A MANNED **OUTPOST** USING OTHER **ACTIONS**.

CREATING A CRAFT:

CREWED SPACECRAFT

YOU MAY DISCARD THIS CRAFT ONLY AT OUTPOSTS OR WHILE IN ORBIT OF TREE

Take an unused **craft** card and its associated meeple and flip the card to its **crewed** or **uncrewed** side, depending on what type of **craft** you want. Then, place the card in front of you and its meeple on *Tree*'s **orbit-space.**

You are component-limited, so the maximum number of **craft** in play at any time is 2. The choice between **crewed** and **uncrewed craft** is yours to make.

> THE **ORBIT-SPACE** OF *TREE* IS USED BY MANY **ACTIONS**, SUCH AS **CREATING A CRAFT**. OVER THE COURSE OF THE GAME, YOU MIGHT GAIN THE ABILITY TO EXECUTE SUCH **ACTIONS** AT OTHER **SPACES**, WHICH IS VERY USEFUL.

Just like for **depots**, there is no limit to the number of **craft** located on any one **space**, celestial object or not. Basically, the cosmos is just really really big.

ACTION: DISCARD DEPOT / CRAFT / PART

Discarding is rather a straightforward **action**, its **cost** is 0.

DISCARDING ANY DEPOT:

Remove the **depot**'s associated die from the map and set aside both the **depot**'s card and its die. They may enter play again later as a new **depot**. All **fuel** inside the **depot** is lost and all **constructed parts** inside the **depot** are returned to your **known parts** (see pages 20 and 21).

> ALTHOUGH THIS SOUNDS VERY DESTRUCTIVE AT FIRST, YOU WILL PROBABLY USE THIS **ACTION** OFTEN. NORMALLY, YOU **CREATE DEPOTS** TO STORE ANYTHING YOU MIGHT NEED LATER, UNTIL YOU REALIZE THAT YOU ACTUALLY DO NOT...

DISCARDING ANY CRAFT:

Remove the **craft**'s associated colored meeple from the map and set aside both the card and the meeple. They may enter play again later as a new **craft**. All **fuel** inside the **craft** is lost and all **constructed parts** carried by the **craft** are returned to your **known parts** (again, see pages 20 and 21).

You can always discard **uncrewed craft**, no matter their current state and location. A **crewed craft** however can only be **discarded** when it is located on the same **space** as an **outpost** <u>or</u> when it is in **orbit** of planet *Tree* <u>or</u> implicitly when used by the **'convert depot into outpost' action** (see page 19).

> WHY THIS RESTRICTION, I HEAR YOU ASK? THE ANSWER IS SIMPLE... **CREWED CRAFT** ARE CARRYING BRAVE SQUEAKS AND EVERYTHING THEY NEED TO SURVIVE IN SPACE AND <u>YOU CANNOT JUST MURDER THEM!</u> OUR CREWS ALWAYS NEED A PLACE TO SAFELY DISEMBARK THEIR **CRAFT**, SO EITHER GET THEM TO AN **OUTPOST** OR GET THEM HOME!

DISCARDING ANY CONSTRUCTED PART:

Take the card representing the **constructed part** you want to **discard** and move it back to your **known parts**. You can **discard parts** from either **craft** or **depots**. Be careful to never flip the **part** card to its other side while doing this.
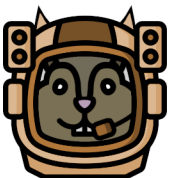
> DISCARDING A **PART** IS THE ONLY WAY TO RETURN IT TO YOUR **KNOW PARTS**, FROM WHICH YOU CAN **CONSTRUCT** IT AGAIN. IT IS OFTEN PREFERRABLE TO RE-**CONSTRUCT** SOMETHING THAN TO FIGURE OUT A WAY TO GET BACK ONE PARTICULAR **PART** ALL THE WAY BACK TO *TREE*...

Some **directives** instruct you to use the so called **special part**, which belongs to the ***mission-specific*-class** and shows the ⚠ - symbol, indicating that the card is related to a **directive**. This **part** is treated like any other, except for the fact that you must not **discard** it (directly or indirectly). A **directive** using the **special part** also explains how the **part** enters and leaves play.
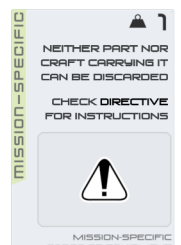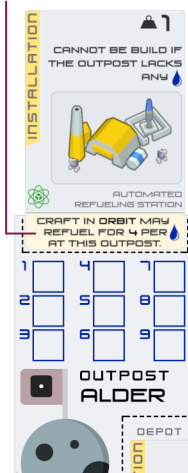
ACTION: EXPAND EXISTING OUTPOST

The **cost** of this **action** is 1.

Every **outpost** has at least one **built installation-class part** (see the **'convert depot into outpost' action** on the next page), typically called its **installation**.

ACTIVE BOON

DEPOT SECTION

INACTIVE BOON

Take a look at *Outpost Alder* on the left. A **part** card has been placed in its *installation* section on the **outpost** card's top edge, making that **part** this **outpost's** only **built installation** right now.

Near the lower half of the **outpost** card, we find a **part** in the card's *depot* section, the *Research Laboratory.* An **outpost's** *depot* section is a valid target for **transferring parts** (explained later on page 20).

If you perform the **'expand existing outpost' action**, you may move an **installation-class part** from an **outpost's** *depot* section to its *installation* section, thereby **building** it.

Only after an **installation-class part** has been **built**, the boon shown in the card's yellow bottom area becomes active. For example, the *Automated Refueling Station* already **built** in the example on the left allows you to **refuel craft** in **orbit** of the celestial object this **outpost** is located on (see page 29 for details). In contrast, the *Research Laboratory* in its depot section is not **built** but can be used to **expand** the **outpost**.

> THE BOON OF A **BUILT INSTALLATION** ONLY TAKES EFFECT AT ITS **OUTPOST** OR CAN BE USED AT OR WITH THIS **OUTPOST**. THE **OUTPOST** IS ITS POINT OF REFERENCE!

There is no limit to the number of **built installations** at any one **outpost**, however no **part** with the same name may be present twice in its *installation* section (does not apply to its *depot* section).

The effect or boon of all **built installations** are active at the same time and the cards themselves can be stacked easily, as seen here on the right. In case of conflicting instructions (like by how much a **craft** can **refuel**) you may always choose the most benefical effect.

Note that **building**, aka moving a **part** to the *installation* section of an **outpost**, cannot be reverted. All of an **outpost's** **installations** are permanent, neither **discarding** them (see previous page) nor **transferring** them somewhere else (see page 20) is possible.
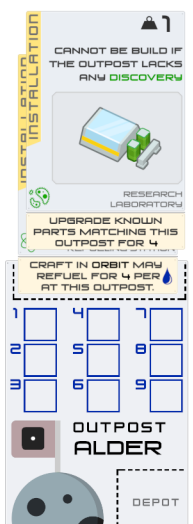
> THINK LONG AND HARD ABOUT WHAT TO **BUILD** WHERE. A WELL-PLACED **OUTPOST** THAT HAS EXACTLY THE RIGHT **INSTALLATIONS** CAN MAKE ALL THE DIFFERENCE WHEN IT COMES TO PLANNING MORE DEMANDING MISSIONS...

ACTION: CONVERT DEPOT INTO OUTPOST

This is a more complicated **action**. While its **cost** with regards to the **track cube** is just 2, there are additional pre-conditions that must be fulfilled:

- only **depots** on celestial objects can be **converted** to **outposts**
- an **installation-class part** (which will be **built**) must be inside the **depot**
- a **crewed craft** must be **landed** there (and is **discarded** via this **action**)
- no other **outpost** may be present there, only 1 **outpost** per celestial body
- if the celestial object has **discoveries**, it must have been **explored** first

Converting a **depot** to an **outpost** cannot be reverted, this is a <u>permanent</u> decision.

Now, consider the situation shown on the right: All of the above conditions are satisfied, **converting** is thus possible.
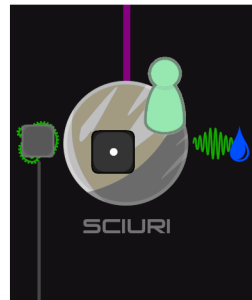
HAS BEEN EXPLORED, SEE PAGE 25

CREWED CRAFT AT LOCATION — PART IN DEPOT
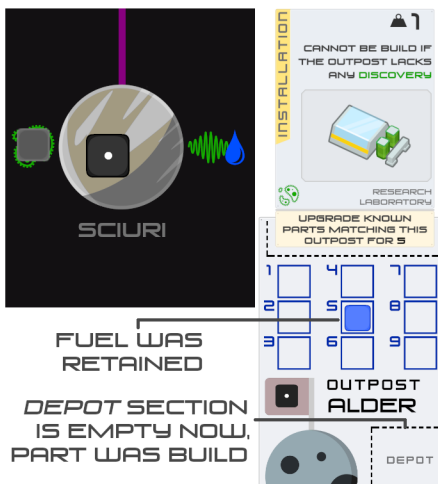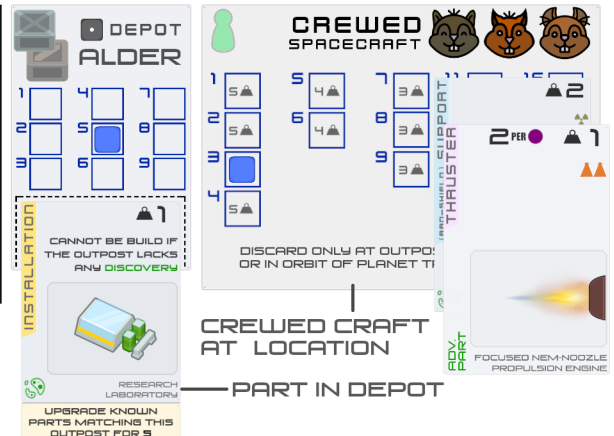
To execute the **action**, you flip the **depot** card to its **outpost** side, **build** an **installation** by moving <u>one</u> of the **depot**'s **installation-class parts** from *depot* to the *installation* section and, finally, **discard** the **crewed craft**. Other **parts** or **fuel** of the **depot** are retained and simply placed into the new **outpost.**

FUEL WAS RETAINED

DEPOT SECTION IS EMPTY NOW, PART WAS BUILD

> IF YOU WANT TO KEEP SOMETHING FROM THE **CRAFT**, JUST **TRANSFER** IT PRIOR.

OUTPOST CONVERSION BONUS

Each time you successfully **convert** one of your **depots** to an **outpost**, you are rewarded with a new or improved **known part**. Choose <u>one</u> of the following:

[a] take either the **equipment-class** or **support-class part stack**, go through it (you may look at all cards within) and pick any one **part** to add to your **known parts**. Afterwards, shuffle this entire **part stack**.

[b] upgrade one of your **known parts** <u>matching</u> the **outpost**'s **discovery**. (if the **outpost** lacks **discoveries** or you have no such **parts**, select [a] or [c])

[c] take the top card from any one **part stack** add it to your **known parts**.

Upgrading means flipping a **known part** to the side showing "***ADV. PART***" in its lower left corner. As noted earlier, the **part**'s **discovery** symbol must be a match for the **outpost**. When creating an **outpost** on *SCIURI* in the example above, you could decide to **upgrade** the **part** on the right as both the **part** and *SCIURI* show 〰 .
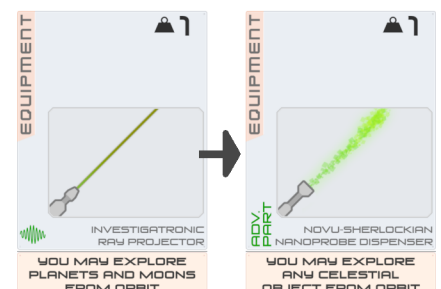
ACTION: TRANSFER CONSTRUCTED PART

The **cost** of this **action** is 0.

First, you must understand that each **part** card in the game can represent one of three different things thematically, depending on where the **part** card is located:

(1) on top of a **part stack**: an emerging technology, a field of further **research**

(2) in front of you: a **known part**, established technology which you can use

(3) in a **craft** or **depot**: a **constructed part**, an actual physical device/machine

The **transfer action** moves a **constructed part** from some **craft**, **depot** or **outpost** to another **craft**, **depot** or **outpost**. This is possible only if both source and target are on the same **space** and no **maximum mass** limit is violated.

Each **part** card in the game has a ⚖ **mass**, specified in its top right corner. It can be 0, meaning the weight of this part is negligible, but it is always given.

The number of parts in any **outpost** or **depot** is unrestricted but **craft** have a **maximum mass**: no **craft** can carry **parts** with a combined **mass** larger than 5.
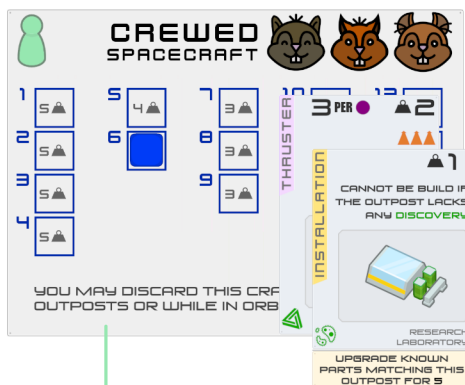
To indicate that a **craft** is carrying **parts**, simply place the **parts** on its card. It is recommended to lay them down in such a way that they cover some of the blue boxes showing a **mass** number: Place the cards so that only those boxes showing a number <u>higher or equal</u> to the **parts**' combined **mass** remain visible (see page 24). The **craft** on the left is carrying two **parts** with a combined **mass** of 3, therefore the columns for **mass** 2 and **mass** 1 have been covered.
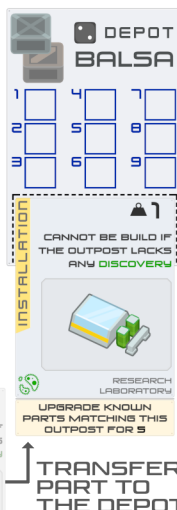
ON THE LEFT, THE **CRAFT** FROM ABOVE IS **TRANSFERRING** ONE **PART** TO A **DEPOT** ON *SCIURI*. THEN, ONLY THE **THRUSTER** REMAINS ONBOARD AND THE **CRAFT** IS AT **MASS** 2 NOW! WE CAN THUS REVEAL ONE MORE COLUMN OF THE BLUE BOXES.

You only ever need to track **mass** for **craft**, since it affects **fuel capacity** (see page 24) or could prevent some **transfer** to that **craft**.

As mentioned above, no **maximum mass** is in effect for **outposts** and **depots**: you can put any number of **parts** into the sections labeled *depot* near the bottom of these cards. Do note however that **transfer actions** may only target or affect the *depot*-section of an **outpost** card, never its *installation*-section (see page 18). **Built installations** are permanent!
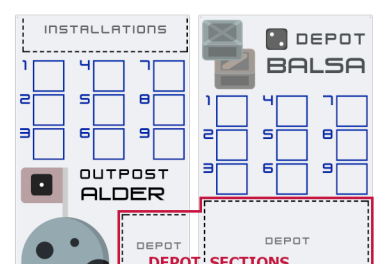
ACTION: CONSTRUCT KNOWN PART

Using this **action**, you may transform a single **known part** into a **constructed part**. The **cost** of this is 1.

Executing this **action** is simple: take one of your **known parts** and add it to a **craft** or **depot** in *Tree*'s **orbit space**. A **craft**'s **maximum mass** is in effect.
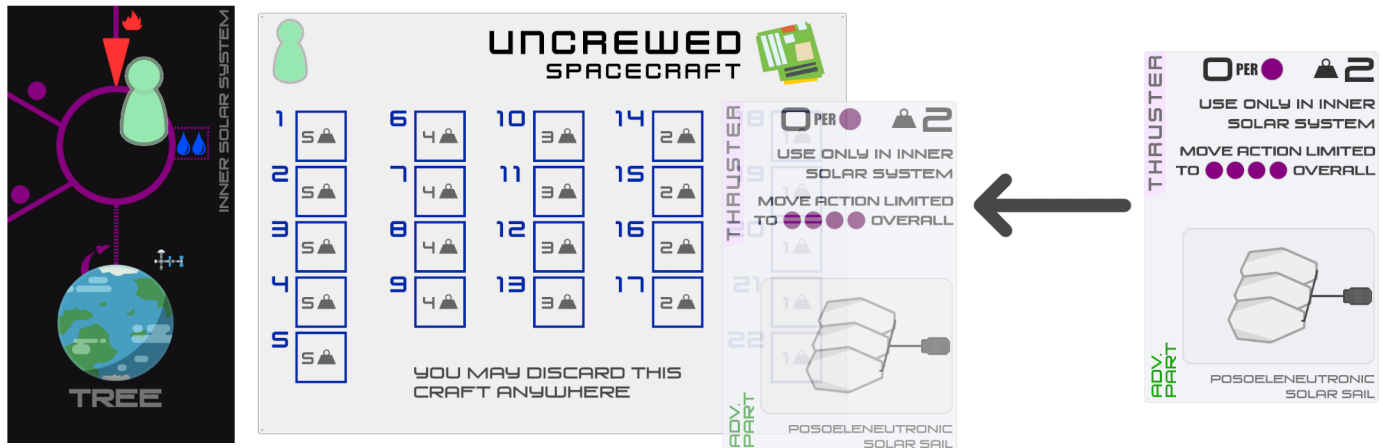
OF COURSE, THIS TECHNOLOGY IS NOT FORGOTTEN BUT THOSE PESKY BUDGETARY CONSTRAINTS PREVENT US FROM JUST BUILDING TONS AND TONS OF THESE THINGS! ONCE YOU **DISCARD** ANY **CONSTRUCTED PART** THOUGH, THAT CARD GOES BACK TO YOUR **KNOWN PARTS** AGAIN.

Remember: You can only **upgrade** your **known parts** (e.g. via the **outpost founding bonus**), never your **constructed** ones! This means that you need to ensure a **part** you want to improve is not a **constructed part** in some **craft** or **depot** when the chance to **upgrade** it finally comes along.

DESPITE THIS, IT CAN BE USEFUL TO **CONSTRUCT** SOME **PARTS** ON SPEC, INSTEAD OF JUST-IN-TIME. A **DEPOT** IN **ORBIT** OF PLANET *TREE* HOLDING SOME **FUEL** AND A *HEAT SHIELD* CAN MAKE ALL THE DIFFERENCE WHEN A DIFFICULT **DIRECTIVE** SUDDENLY COMES ALONG...

CONSTRUCTING KNOWN PARTS AT OUTPOSTS

Some **installations** have boons that allow you to execute the '**construct known part' action** at an **outpost**. When doing so, you simply place the **part** into the **outpost**'s *depot*-section.

WHICH IS OFTEN VERY USEFUL, ESPECIALLY CONSIDERING THAT THIS PARTICULAR BOON ALSO REDUCES THE **ACTION'S COST** TO 0!

However, these boons typically restrict what **class** of **part** can be **constructed**, the *Construction Facilities* on the left here for instance allows **construction** of **equipment-** and **support-class parts** only. Of course, your ability to **construct** all **classes** of **parts** into a valid target in *Tree*'s **orbit** remains unaffected by having access to some boon.

ACTION: LAUNCH CONSTRUCTED PART FROM OUTPOST

With this **action**, you can **launch** a **constructed part** located at an **outpost** to some **craft** or **depot** on any of its **orbit spaces**. Effectively, you are able to **transfer** a **constructed part** over a **transition** that your **craft** would use to **land** at the **outpost**, but it is a <u>one-way operation</u>. The **cost** of this **action** is 1.

Note that all rules related to **maximum mass** of **craft** remain in effect.
Also, having an **outpost** is required, you cannot **launch** a **part** from a **depot**.

> PLANETSIDE **DEPOTS** ARE LITTLE MORE THAN A NUMBER OF CONTAINERS ON THE SURFACE OF SOME CELESTIAL OBJECT. ONLY **OUTPOSTS** HAVE THE FACILITIES ASSEMBLE A SINGLE-USE *ORBITAL DELIVERY VEHICLE*, USED TO **LAUNCH A PART**.

To execute a **launch action**, you simply take the **part** out of the **outpost**'s *depot*-section and add it into the target **craft** or **depot** in **orbit** of the **outpost**.

This **action** is not a movement, that means any **transition requirements** (like some 🔺 symbols) between your **outpost** and your target's **orbit** are completely ignored because these are only related to moving **craft** around.

Launching this part from *Outpost Cedar* on *Scurrio A* to an uncrewed craft in orbit
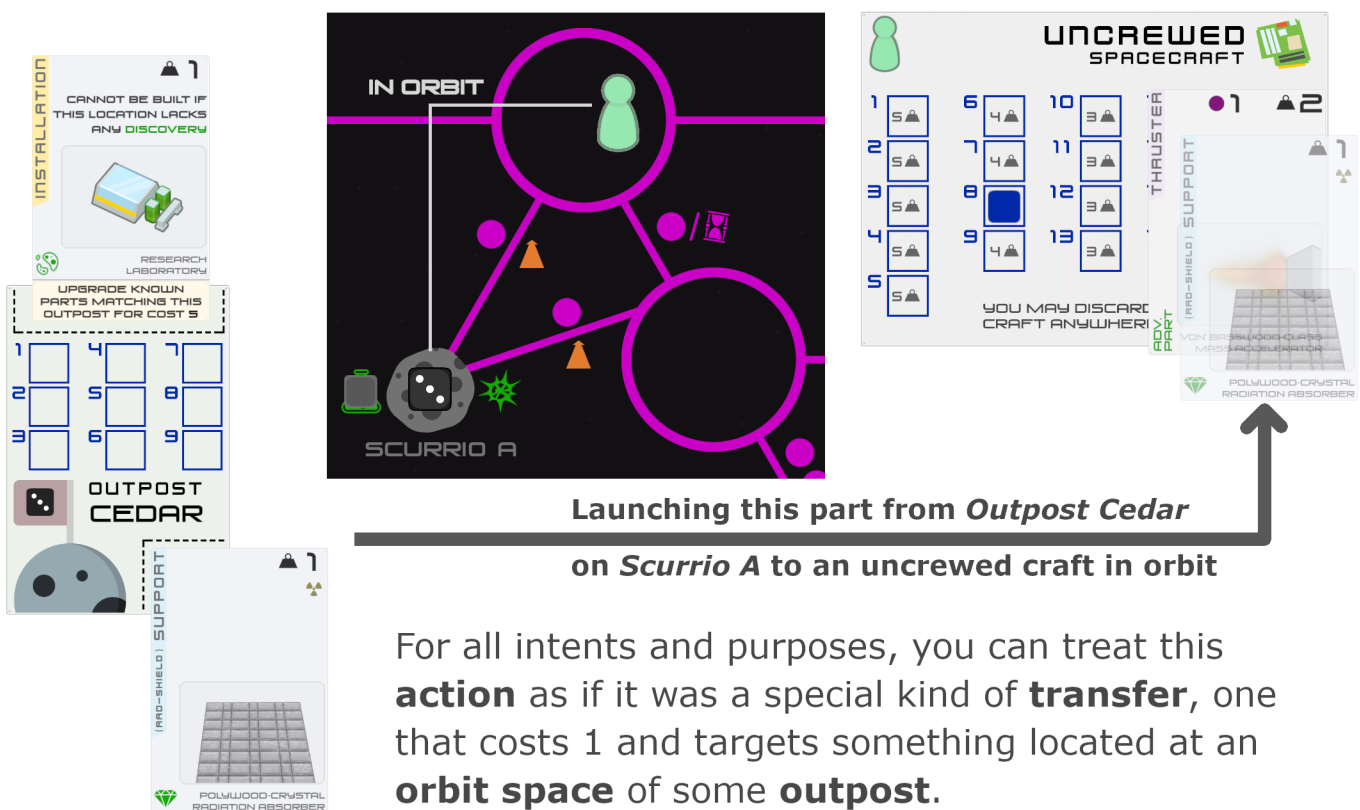
For all intents and purposes, you can treat this **action** as if it was a special kind of **transfer**, one that costs 1 and targets something located at an **orbit space** of some **outpost**.

It is not possible to use a **launch action** to send something down to the **outpost** from **orbit**. Also, **fuel** cannot be **launched**, as this **action** only deals with **parts**.

> LAUNCHING PARTS IS AN **ACTION** TYPICALLY ONLY USED BY MORE EXPERIENCED PLAYERS AND DURING LATER STAGES OF THE GAME. SO, IF YOUR HEAD IS ALREADY SPINNING FROM ALL THE DIFFERENT OPTIONS YOU HAVE, JUST FORGET ABOUT THIS SINGLE ACTION FOR NOW...

ACTION: RESEARCH NEW PART

Using this expensive **action**, you can gain new **known parts** at **cost** 4.

THEY SAY THAT KNOWLEDGE IS POWER BUT KEEP IN MIND THAT THIS **ACTION** IS <u>REALLY</u> EXPENSIVE!
ASIDE FROM A FEW BONUS EFFECTS (E.G. FROM SOME **DIRECTIVES**), THIS **ACTION** IS THE MAIN SOURCE OF NEW **KNOWN PARTS** AND THEREFORE YOU WILL PROBABLY PERFORM IT AT SOME POINT. BUT GIVEN ITS HIGH **COSTS**, ALWAYS CONSIDER YOUR ALTERNATIVES CAREFULLY!
<u>MY TIP</u> : WHEN IT COMES TO **KNOWN PARTS**, COLLECT AS FEW AS POSSIBLE BUT AS MANY AS NECESSARY...

Executing this **action** is easy: take the top card from a single **part stack** of your choice and add that **part** to your **known parts**, thereby also revealing the next card of that **part stack** to you. This process is called **researching**.

Note that there is no limit to the amount of **known parts** in your possession.

REMEMBER THAT OBTAINING **ADVANCED** VERSIONS OF **PARTS** IS YOUR BEST OPTION LONG-TERM AND THAT IS BEST ACHIEVED BY FOUNDING NEW **OUTPOSTS** WITH **DISCOVERY** SYMBOLS MATCHING YOUR **KNOWN PARTS**.

ABOUT THE DIFFERENT PART STACKS

Through **research**, you can gain a new **part** card and reveal the next one of a particular **stack**. But how do the different **part stacks** differ from each other?
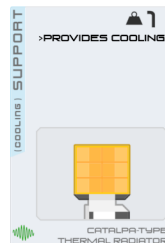
On the left, you can see one **part** of each of the four **classes** of which you have **stacks**: Those are, from the left, **thruster, installation, equipment** and **support**. Let's look at them now!

The purpose of **installations**, creating and growing **outposts**, was already clear.

Thrusters are used to **move craft**, which will be explained on page 25.

Equipment represents highly specialized machinery that can be mounted onto your space**craft**, like tanks for more exotic secondary fuel types or additional scientific devices to aid in **exploration** (also see page 29). Therefore, some **equipment parts** come with boons described near the respective card's bottom. In contrast to any boons on **installations**, these **equipment** boons are always active and are beneficial to the entity carrying the **part**, which is typically a **craft**.

Support parts on the other hand mainly augment the viablity and survivabiliy of your space**craft** when carried by them. This **stack** contains **parts** that shield a **craft** from various dangers in space, as well as so called *radiators* that provide *cooling* (like the **part** seen above), which in turn is required by some **thrusters.**

In general, any special effect, boon, restriction or requirement related to some **part** will <u>always</u> be printed on that **part** itself. So, study each card thoroughly!

ACTION: TRANSFER FUEL

This **transfer action** simply allows you to move any amout of **fuel** between **craft**, **depots** and **outposts** at **cost** 0. This is possible only if the two parties involved in the **transfer** are on the same **space** and have enough **fuel capacity**.

You can **transfer** as much **fuel** as you see fit, simply reduce the amount for one of the parties involved and add that same amount to the **fuel** of the other party.

ABOUT FUEL MANAGEMENT

Traveling through the solar system will require **fuel**, which is mostly carried and used by **craft**, but can also be stored within **depots** and **outposts**.
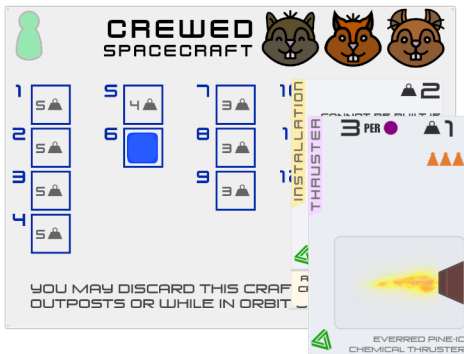
Tracking the amount of **fuel** for some entity is rather straightforward: each such card shows a number of blue boxes, referred to as the **fuel capacity** track. Use a single cube per card to indicate the amount of **fuel** carried by or stored in the represented entity and simply place no cube at all to indicate zero **fuel**. Look to the left, that **craft** carries 6 units of **fuel**.

As hinted at on page 20, a **craft**'s current **mass** limits the amount of **fuel** that **craft** can carry: a box can only be used while the combined **mass** of a **craft**'s carried **parts** <u>does not exceed</u> the **mass** amount specified <u>within</u> that box!

Since the **craft** seen above is carrying **parts** with a combined **mass** of 3 (2+1), only the boxes showing 3⚖, 4⚖ and 5⚖ can be used right now. The maximum amount of **fuel** this **craft** can currently carry is therefore 9, of which it carries 6. Note that some **fuel capacity** boxes on the right half of the **craft** are obscured, as carried **parts** should always be placed on a **craft** in such a manner that all of the unusable boxes are not visible, as this helps to avoid mistakes while playing.

If the carried **parts** have a combined **mass** below or equal to 1, just place them on the **craft** card's right edge, keeping all boxes visible. When **transferring parts**, always ensure to keep the state of your craft's boxes up-to-date. Finally, note the following: you can never exceed your current **fuel** limit and when you **refuel** (see page 29), excess **fuel** is always lost.
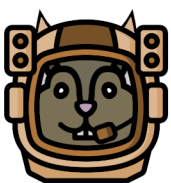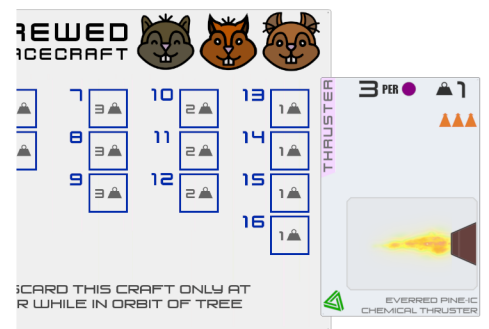
THIS PAGE ONLY SHOWS CREWED CRAFT TO PROVIDE YOU WITH A CONSISTENT EXAMPLE. EVERYTHING STATED ABOVE IS TRUE FOR UNCREWED CRAFT AS WELL, ONLY THEIR BOXES AND AMOUNTS DIFFER A BIT.

Tracking **fuel** stored inside **depots** and **outposts** follows simpler rules, as there is no **mass** limit here and the all boxes are thus always usable. Up to 9 units of **fuel** can always be stored there, no matter how many **parts** are present.

ACTION: USE THRUSTER TO MOVE

This **action** allows you to move your **craft** around the solar system at **cost** 1. As the name suggests, a **thruster-class part** is required to do so at all times.

Within a single move, you can move a **craft** over as many **transitions** as you want, provided you can meet each such **transition**'s **requirements**. Since one always executes an **action** in full, you cannot interrupt a **move** with another **action**. Your movement must end if you want to do something else.

> YOU HAVE LEARNED HOW TO PREPARE FOR A JOURNEY AND WHAT TO DO AFTER THAT JOURNEY HAS ENDED. NOW, FINALLY, LEARN ABOUT THE **ACTION** THAT ENABLES ALL THIS SPACE EXPLORATION... ACTUAL SPACE TRAVEL!

To **move**, you must first choose a **craft** and then a **thruster** carried by the **craft**. These are locked in for the entire **move action**! If you want to switch to a different **thruster** at some point, it requires performing a second **move action**. After selecting **craft** and **thruster**, you **move** the **craft**'s meeple between **spaces** using **transitions**, provided you meet each **transition**'s **requirements**.

Recall page 10, which defined the **requirements** of **transitions**: the most basic requirement is a ●, a **burn**, which the **craft** must pay in **fuel**. The **thuster** used to **move** defines how many units of **fuel** must be spend for each **burn** symbol.

Note that the ⧗-symbol denotes a special type of **burn**, one that you do not need to pay fuel for but can only perform as the very <u>first</u> step of each **move**. A ⧗ only appears as an alterative, as in ●●/⧗. Here, if this is the first **transition** you are **moving** over during this **action**, the **fuel** cost is 0. Otherwise you must pay for ●●. Finally, recall that ⚘ means no **burn**, so the **fuel** costs are 0 here.
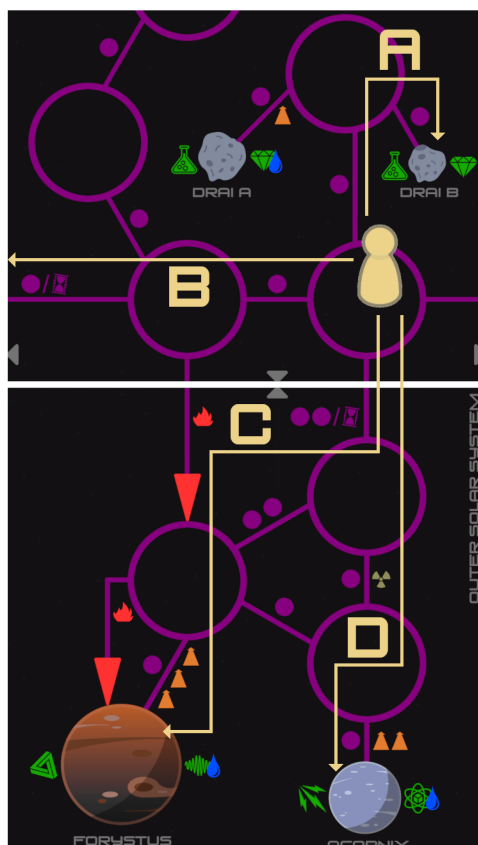
A) ●+● = 4 fuel
B) ●+● = 4 fuel
C) ⧗ + ●● + ● = 6 fuel
D) ⧗ + ● + ● = 4 fuel

Thruster used determines amount of **fuel** required for each of the 4 routes.

Burn rate of thruster:
Pay 2 fuel per ●

EVERRED CONE-IC CHEMICAL THRUSTER

CREWED SPACECRAFT

YOU MAY DISCARD THIS CR... ...U...
OUTPOSTS OR WHILE IN OR... PAR...

CANNOT BE BUILD IF...

All other **requirements** of a **transition**, which can be any amount and combination of ▲ **thrust**, 🔥 **heat**- or ☢ **radiation-shielding**, can be satisfied by your **craft**'s current **parts** without spending **fuel**. You may move a **craft** over a **transition** if and only if, for each of these **requirements**, your **craft**'s amount of matching symbols is equal or larger than **required** by the **transition**. <u>NOTE</u>: A ▲ **thrust requirement** can only be satisfied by the **thruster** you have selected for the current **move action**, since that **thruster** is currently propelling this **craft**. Other **thrusters** carried by the **craft** cannot contribute ▲-symbols! For 🔥 and ☢, any number of **parts** carried by the **craft** can contribute symbols.
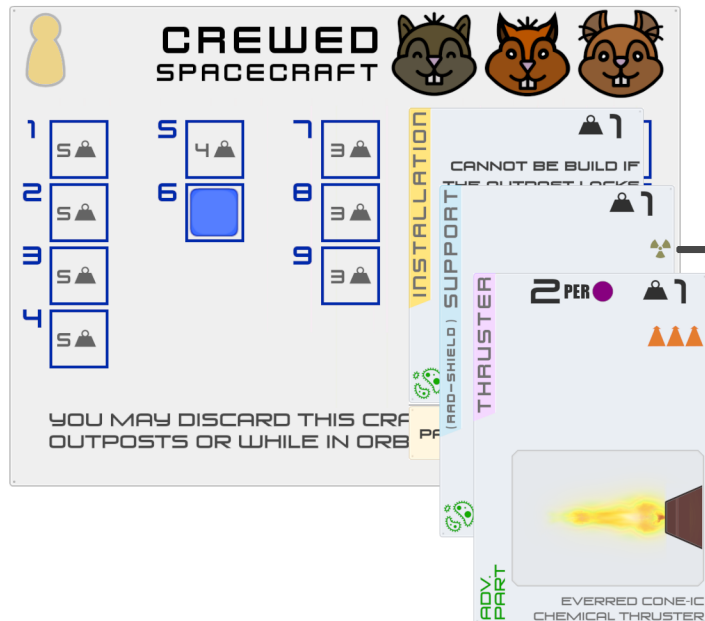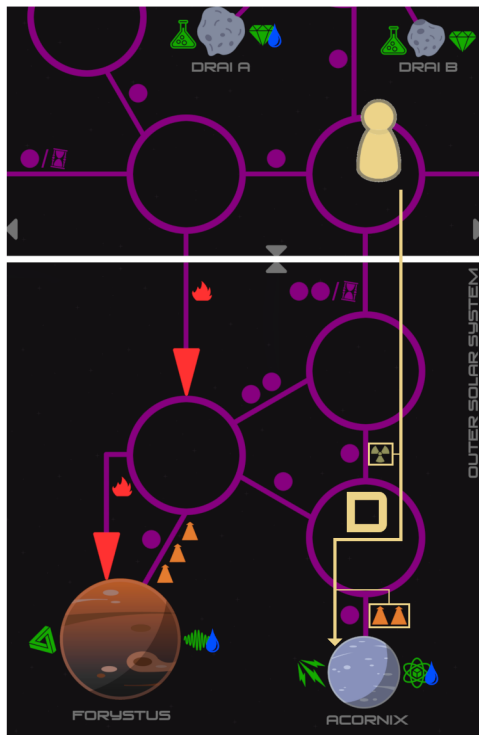
Taking the indicated D route is only possible because this craft **satisfies** all **requirements**.

ALTERNATIVE ROUTES OFTEN EXIST, AVOIDING SOME REQUIREMENTS LIKE THE ☢ -SYMBOL OF OUR EXAMPLE... HOWEVER, THEY OFTEN COME AT A HIGHER **BURN COST**. THE **CRAFT** ABOVE HAS 6 **FUEL**, ENOUGH FOR 3 **BURNS** USING THE **THRUSTER** IT IS EQUIPPED WITH RIGHT NOW. FROM ITS CURRENT POSITION, TAKING THE ALTERNATE ROUTE THROUGH *FORYSTUS'* **ORBIT-SPACE** TO AVOID ☢ WOULD PREVENT US FROM LANDING ON *ACORNIX*, AS WE WOULD RUN OUT OF **FUEL** IN **ORBIT** AROUND THAT **MOON**.

Some **parts** have to be **discarded** after using them to satisfy a **requirement**. Doing so does <u>never</u> stop your current **movement**, as they are **discarded** through your **move action**. A **part** card's text indicates if and when this occurs. Note that you can only move over a **transition** if you can satisfy and pay for <u>all</u> of its **requirements**, so if a **craft**'s **parts** change mid-move as a **part** is "used up" and thus **discarded**, the next **transition** can become unusable to you.

BURNS ARE THE BIGGEST OBSTACLE YOU FACE WHEN TRYING TO GET SOMEWHERE. THANKFULLY, **ADVANCED THRUSTERS** ARE EITHER MORE **FUEL** EFFICIENT OR HAVE LESS **MASS**, WHICH ALLOWS YOU TO CARRY MORE
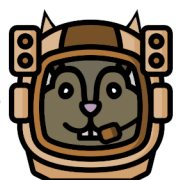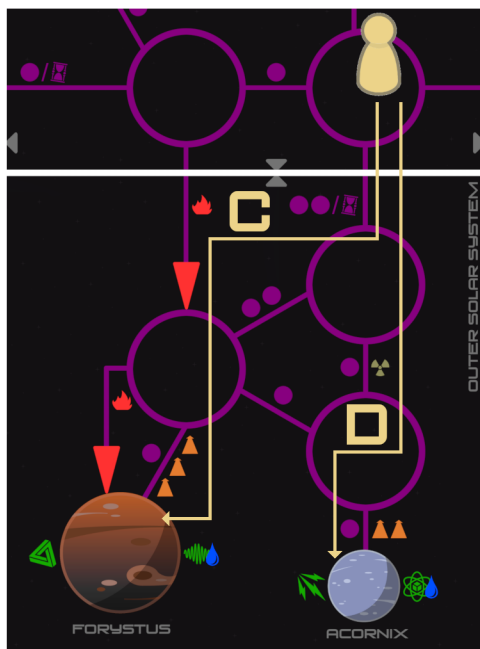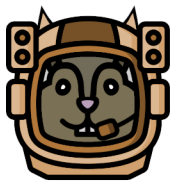
LET'S ASSUME WE WANT TO SET UP AN **OUTPOST** ON THIS **PLANETARY TILE**, THAT MEANS **LANDING** ON *FORYSTUS* OR *ACORNIX*. IN OUR RUNNING EXAMPLE, ROUTES **C** AND **D** BOTH MATCH OUR GOAL, SO LET'S TRY OUT BOTH ROUTES...

RESULT FOR ROUTE **C** | RESULT FOR ROUTE **D**

ON THE LEFT, THERE IS NO CUBE! WHY? WELL, WE HAD TO PAY FOR 3 **BURNS**, WHICH DID COST US 6 OF OUR 6 UNITS OF **FUEL** WITH THAT **THRUSTER**. ON THE RIGHT, WE ONLY PAID FOR 2 **BURNS**, LEAVING US WITH 2 UNITS OF **FUEL**... SO, WE CAN REACH BOTH TARGETS. THE CHOICE IS YOURS!

Landing a **craft** somewhere is often a pre-requisite to execute other **actions** (such as **converting a depot into an outpost** or **exploring** a location), but it is also regularly featured on **directive** cards as part of that card's condition.
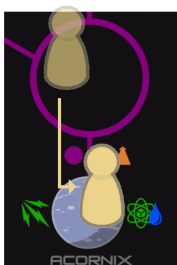
Note that to **land**, a craft must stop its **movement action** at the location. Just passing through some **space** during a **move** is allowed but such a **craft** never counts a **landed**.

To the left, the **craft** is indeed **landing** on *Acornix*. To the right, the **craft** just passes through the *Acornix* **space**.
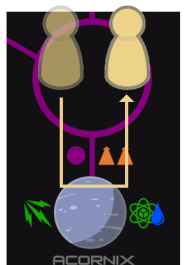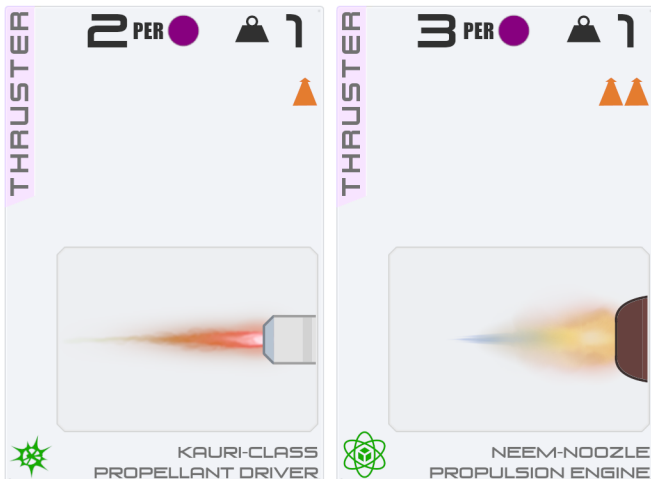
ABOUT THE DIFFERENT THRUSTERS

ON AS THE MAIN PURPOSE OF YOUR SPACE**CRAFT** IS TO GO SOMEWHERE USING A **MOVE ACTION**, THE **THRUSTERS** OF YOUR **CRAFT** DETERMINE ITS REAL CAPABILITIES MORE THAN ANY OTHER **PART**. THIS PAGE ELABORATES ON THIS.
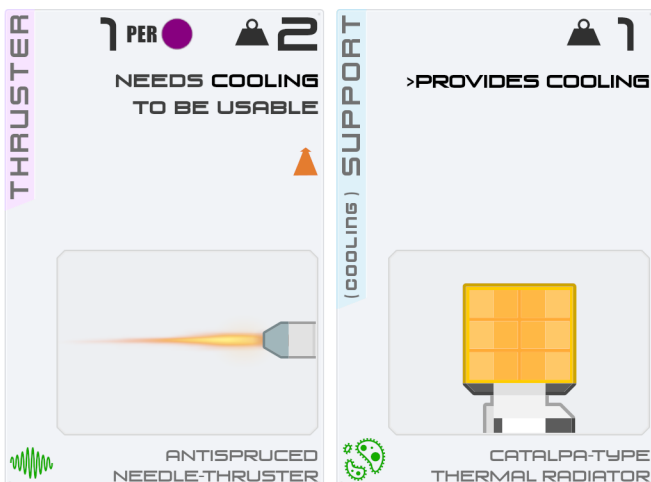
As explained on the previous pages, the **thruster** you use to **move** determines the amount of **fuel** the **craft** must "pay" for each **burn** ●. Note that nothing will ever modify this amount after you have chosen your **thruster** for the **move**.

THRUSTER — 2 PER ● ⚖ 1 ▲ — KAURI-CLASS PROPELLANT DRIVER

THRUSTER — 3 PER ● ⚖ 1 ▲▲ — NEEM-NOOZLE PROPULSION ENGINE

This means that some **thrusters** are more efficient than others! Compare the two **thrusters** on the left: the left one, a *Kauri-Class Propellant Driver* will eat through your **craft**'s **fuel** tanks much slower than the *Neem-Noozle Propulsion Engine* on the right. So you can fly farther with the *Kauri*! However, the *Neem-Noozle* features ▲▲ instead of the *Kauri*'s single ▲, allowing the former to use additional **transitions**.

THIS MEANS THERE IS NO PERFECT THRUSTER! IT ALL DEPENDS ON THE MISSION, WHAT YOU ARE TRYING TO ACCOMPLISH! A **CRAFT** MIGHT EVEN CARRY MULTIPLE **THRUSTERS** FOR DIFFERENT SITUATIONS, IF BENEFICIAL...

THRUSTER — 1 PER ● ⚖ 2 — NEEDS COOLING TO BE USABLE ▲ — ANTISPRUCED NEEDLE-THRUSTER

(COOLING) SUPPORT — ⚖ 1 — ›PROVIDES COOLING — CATALPA-TYPE THERMAL RADIATOR

Like with any other **part**, a **thruster**'s card might specify further benefits or demands that apply. A **thruster** might for example pose a technological requirement that can only be satisfied another **part**: the *Needle-Thruster* on the left requires *cooling* to be used to **move**. Only as long as the **craft** carries another **part** that provides *cooling*, like the *Radiator* shown right next to it, the **thruster** can be used to **move** said **craft**.

Other **thrusters**, like the *Posoelectronic Solar Sail*, come with very different restrictions: this **thruster** restricts the overall amount of ● - symbols you can pass over per **move action** to 3, thus limiting your range during that single **action**.

THRUSTER — 0 PER ● ⚖ 3 — USE ONLY IN INNER SOLAR SYSTEM — MOVE ACTION LIMITED TO ●●● OVERALL — POSOELECTRONIC SOLAR SAIL

Furthermore, its usage is restricted to the **inner** solar system, meaning the **thruster** cannot even be used to **move** over a **transition** on a **tile** of the **outer** solar system (a **transition** belongs to the tile on which its ●-costs are printed).

In summary: always study your **thruster** before **moving**!
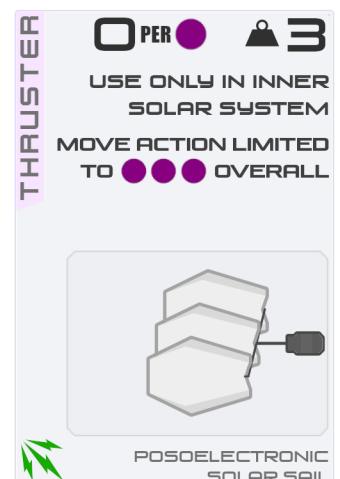
ACTION: REFUEL CRAFT

With this **action**, you can **refuel** one specific **craft**, that means moving the cube on its **fuel capacity** track to a higher number. The **cost** of this **action** is 1.

Each time you execute this **action**, the target **craft** gains 4 **fuel** per 💧-symbol at its location. If no such symbols are present, you cannot **refuel** at this location.

By default, you can only **refuel craft** located at **outposts** or in **orbit** of *Tree.* Some **parts** can give a **craft** the ability to **refuel** without an **outpost**.

The **cost** of the **action** is always 1, even if you hit the **craft**'s maximum **fuel capacity** and thus gain less. Note that each **refuel action** only affects one **specific craft**, splitting the **fuel** gained between different targets is not possible.
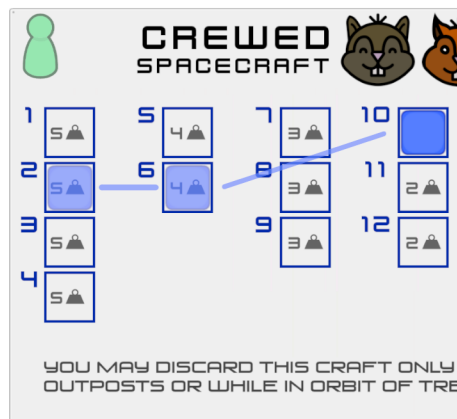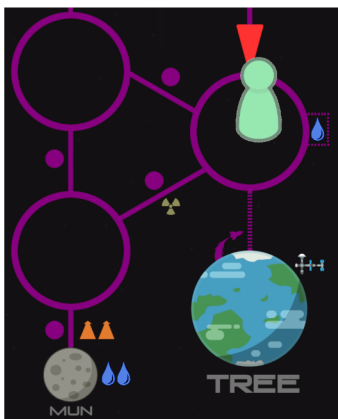
For example, this **craft** in **orbit** around *Tree* gains 4 units of **fuel** per **refuel action** because that **space** shows only 1 💧-Symbol. Performing the **action** once takes the **craft** from 2 to 6 units and spending a second **action then** increases that to 10 units of **fuel** (**craft** only partially shown here).
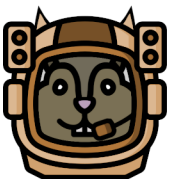
SETTING UP AN **OUTPOST** ON THE *MUN* ENABLES US TO **REFUEL** OUR **CRAFT** FOR 8 UNITS PER **ACTION**, MUCH BETTER THAN 4 UNITS IN *TREE'S* **ORBIT**. HOWEVER, NOTE THAT THE **TILE** USED IN THE *INTRO GAME* IS DIFFERENT!

ACTION: EXPLORE CELESTIAL OBJECT

With this **action** of **cost** 1, you are able to determine the available **discovery** of a celestial object (out of its two possible **discoveries**). A **craft** is required to perform this **action, which** must be **landed** at the **unexplored** celestial object.
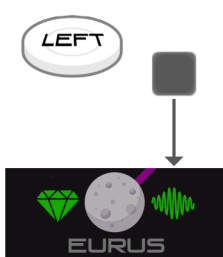
To perform this **action**, take the coin and flip it to determine if the left or the right **discovery** has been found, then cover the other using a cube. This celestial object is now **explored** and its **discovery**, which is 💎 in case of *EURUS* on the left, has been determined. If no **discovery** symbols are present for a location, you do not need to **explore** before setting up an **outpost** there.

Note that some **discoveries** include a 💧-symbol, like it is the case for *EYHO* on the right. If the coin flip indicates to cover the right set of symbols, you need to cover all and no 💧 are present here. Otherwise, *EYHO* does feature 1💧 and **refuels** are thus possible. Therefore, if a **craft** wants to **refuel** without using an **outpost** and its current location is **unexplored**, you have to **explore** it first to determine if any 💧-symbols are actually in effect at this particular celestial body.

CHANGING THE MASS OF A CRAFT

As the result of certain **actions**, like **construct part** or **discard part**, the **mass** of a **craft** increases or decreases and you need to change which boxes of the **craft**'s **fuel capacity** track are obscured or not.
This change in **mass** has no effect on the amount of **fuel** carried by this **craft**, except when an increase in its **mass** puts that **craft**'s current amount of **fuel** over its new **fuel capacity**. In this case, recall page 24: all exess **fuel** is lost.

COUNTING DISTANCES FOR DIRECTIVES

A few **directives** contain the instruction to count *unavoidable* **burns**. In this case, you are supposed to find the cheapest route to the indicated target in terms of **burns** only, ignoring all other requirements. In other words, given infinitely many **move actions** and a **craft** satisfying any and all **transition requirements**, choose the route for that demands the fewest **burns** and count that number. Then, depending on the **directive**, the location with the smallest or largest number of **burns** overall (*closest / farthest X, e.g. moon*) is your target.

ENDGAME SCORING

At some point, a **directive** card will state that the game is over.
<u>Note:</u> You can abort your current game if both of your **craft** are **crewed** and currently *stranded*, that means unable to **refuel** or **move** or be **discarded**.

When the game is over, you can determine your overall success by computing your game's score, which is the sum of the following amounts:

- the number of 💀 -symbols visible on the **tiles** (aka your level of **difficulty**)
- the number **explored celestial objects**
- the number **fulfilled directives**, <u>multiplied by 4</u>

Recall that **celestial objects** without **discoveries** cannot be **explored**, thus these do never count for scoring, even if you have created an **outpost** there.
Also remember that the number of **fulfilled directives** might have changed while you where trying to **fulfill** the **act VI directive**, the epiloge.

Once you have determined your final score, eternalize your achievement by recording your result in the *Hall of Fame* on page 6 of this rulebook.

If you prefer purely to win or lose your board games, look only at your **fulfilled directives**: If the game ends with 6 **fulfilled** ones, consider yourself a winner!

> ONCE YOU *WIN* A GAME OR CONSISTENTLY DO WELL ON ONE PARTICULAR **DIFFICULTY LEVEL**, YOU SHOULD REALLY PROGRESS TO THE NEXT ONE. STEPPING AWAY FROM THE *INTRO GAME* WILL BE YOUR FIRST HURDLE... ALWAYS REMEMBER THOUGH, IT IS YOUR GAME AND YOU SHOULD PLAY IN A WAY THAT IT IS FUN FOR YOU!

CONGRATULATIONS, BOSS, YOU MADE IT...   I RECKON THAT YOU ARE PROBABLY FEELING A LITTLE OVERWHELMED, GIVEN THE PRESSURE OF YOUR NEW JOB AND SO ON. LET ME GIVE YOU SOME ADVICE FOR YOUR FIRST DAY:

ROCKET SCIENCE IS COMPLICATED, SO GO SLOW!

First, setup the game (page 7 to 9), then follow this **playguide**, reading up on each **action** as it becomes relevant! The index on page 35 will also help you greatly, as you can quickly determine what to re-read there...

* ignore what the **directive** cards want you to do, but remember to update the **campaign deck** each time your have to perform a **reset**
* **research installation-class parts** until you obtain one that can be **built** on the *Mun* (near planet *Tree*). Check the **part** card itself for restrictions, but something like *construction facilities* or a *research laboratory* would be perfect...
* recall that you have to pay a **cost** for every **action** after performing it
* **research thruster-class parts** until you obtain one with enough 🔺 to land on the *Mun* (refer to the **tile** for **transition requirements**). Also make sure the **thruster** does not need another **part**, so check its text!
* **create** a **crewed craft** in **orbit** of *Tree*
* **construct** the **thruster part** into that **craft**, updating its **mass**!
* **construct** the **installation part** into that **craft**, updating its **mass**!
* **refuel** the **craft** until it is maxed out
* Now, we fly! **Move** the **craft** and land on the *Mun*...
* **discard** the **thruster** of your **craft**, we do not need it anymore
* **explore** the *Mun* and determine its **discovery**
* create a **depot** on the *Mun* (which we could have done at any point)
* **transfer** the **installation** from the **craft** into the **depot**
* **convert** the **depot** into an **outpost**. Remember to select an **outpost conversion bonus** now...   If possible, **upgrade** a **known part**.
* **you are ready** - try to **fulfill** the next **directive** that comes into play...

HEROES OF TREE:
THE ORDER OF THE SILVER ACORN

Every great endeavor that Squeakind ever embarked on was made possible through the efforts of a heroic few, selfless and fearless Squeaks all, for it was they who sacrificed, it was them who gave their life(-time) for the greater boardgaming-good.

Elias Heydrich (and his patient wife)
Ryan Paton
Andrew van Laar
Michael Bevilacqua
Christopher Waite
Andrew Bowling
Eduardo
Ingvar Tjøstheim
The ones who did not wish to be named.

ELIAS HEYDRICH AND HIS FRIENDS FROM PLANET TREE ARE LOOKING FOR

A BOARDGAME PUBLISHER

TO BRING THEIR INTERPLANETARY ADVENTURES TO EVEN MORE HUMANS

CONTACT VIA PM ON BOARD GAME GEEK IF INTERESTED

STRATEGY TIPS

I HAVE ASKED ALL OF MY COLLEAGUES TO COMPILE A LIST OF STRATEGY TIPS FOR YOU. FEEL FREE TO IGNORE THEIR ADVICE, YOU ARE THE BOSS AFTER ALL!

REMEMBER THAT YOUR CREW CAN SURVIVE INDEFINITELY INSIDE THEIR **CRAFT**, SO IF YOU NEED TO, FOR EXAMPLE, **DISCARD** THEIR **THRUSTER** FOR A MORE IMPORTANT TASK, THEN DO SO. PICK'EM UP LATER OR LET THEM BE UNTIL THE GAME ENDS. DO NOT WORRY, THEY WILL BE FINE!

EXECUTING A MISSION TO FOUND A NEW **OUTPOST** OFTEN REQUIRES EXPENSIVE PREPARATION: MANY **PARTS** WILL NEED TO BE **CONSTRUCTED** AND **CRAFT** WILL NEED TO BE **FUELLED** UP. ENSURING THESE MISSIONS ARE ACTUALLY WORTHWHILE PRIOR TO THESE STEPS IS A GOOD IDEA! ONE WAY TO DO THAT IS BY USING A *PROBE*, THAT IS OUR NAME FOR AN **UNCREWED CRAFT** WITH JUST ENOUGH **FUEL** TO GO SOMEWHERE AND **EXPLORE** THE LOCATION.

UNCREWED CRAFT CAN CARRY MUCH MORE **FUEL** SINCE ALL THE HEAVY LIFE SUPPORT EQUIPMENT FOR THE ASTROSQUEAUTS IS NOT PRESENT. ALSO, THEY ARE TOTALLY DISPOSABLE IF THE NEED TO DO SO ARISES. SO, FIRST SENDING AN **UNCREWED CRAFT** TO BRING AN **INSTALLATION PART** TO A LOCATION AND ONLY SENDING THE CREW IN LATER (WITHOUT ANY HEAVY **PARTS**) TO SET UP THE **OUTPOST** IS A VERY VIABLE APPROACH.

EACH TIME A NEW **DIRECTIVE** IS REVEALED, CONSIDER YOUR OPTIONS CAREFULLY: IT IS SIMPLY VERY UNLIKELY THAT YOU WILL BE ABLE TO **FULFILL** EACH AND EVERY **DIRECTIVE** WHEN PLAYING ON HIGHER **DIFFICULTY** LEVELS. EFFECTIVELY, EACH **DIRECTIVE** MUST BE **FULFILLED** USING **ACTIONS** WITH OVERALL **COSTS** OF ABOUT 20 (NOT EXACT BECAUSE CHECKING FOR **FULFILLMENT** IS DONE BEFORE UPDATING THE **CAMPAIGN DECK** DURING CUBE **RESET**). IF A NEWLY REVEALED **DIRECTIVE** LOOKS CHALLENGING, YOU MIGHT INSTEAD WANT TO INVEST THE **ACTIONS** INTO IMPROVING YOUR OVERALL CAPABILITIES, E.G. INTO A NEW **OUTPOST** TO **REFUEL** AT OR GETTING AN **ADVANCED PART**. ONLY **ACT IV** HAS TO BE **FULFILLED** NO MATTER WHAT...

DO NOT **FULFILL DIRECTIVES** TOO QUICKLY, SINCE A NEW ONE IS REVEALED EACH TIME THE **TRACK CUBE** IS **RESET** AND NO **DIRECTIVE** IS IN PLAY. **FULFILLING** ANY **DIRECTIVE** ON TOP OF THE CAMPAIGN DECK ROBS YOU OF **ACTIONS**!

NEVER UNDERESTIMATE THE USEFULNESS OF A **PART** THAT ALLOWS A **CRAFT** TO **EXPLORE** WITHOUT **LANDING**! GRANTED, ON MOST **CREWED CRAFT** IT IS USALLY JUST A WASTE OF **MASS** BUT ON A *PROBE* WITH AN EFFICIENT **THRUSTER** AND NOT MUCH ELSE, IT WORKS REALLY WELL.

DEPOTS ARE VERY USEFUL AND NECESSARY FOR OUR EXPANSION INTO SPACE. HOWEVER, WITH EACH NEW **OUTPOST**, THE NUMBER OF AVAILABLE **DEPOTS** SHRINKS BY ONE, AS THE ADMINISTRATIVE CAPABILITIES OF OUR SPACE PROGRAM ARE NOT LIMITLESS!
SOMEONE HAS TO PLAN AND MANAGE ALL THE SUPPLY RUNS AND CREW EXCHANGES AFTER ALL. DO NOT WORRY, WE WILL NOT BOG YOU DOWN WITH THESE LOGISTICS, YOUR JOB IS SPEARHEADING OUR EXPLORATION EFFORTS ONLY.

BUT DO BE CAREFUL NOT TO OVER-EXTEND TOO QUICKLY!

IF I MAY INTERJECT, THIS RAISES AN IMPORTANT POINT...

INTERPLANETARY WAS ACTUALLY DESIGNED WITH SIX **DEPOT** / **OUTPOST** CARDS IN MIND. HOWEVER, TO LOWER THE BARRIER OF ENTRY A LITTLE BIT, A SMALL NUMBER OF COMPONENTS WERE REMOVED FROM THE BASE GAME AND RELEGATED TO THE FIRST EXPANSION, KNOWN AS:

INTERPLANETARY
EXPANSION 1 - SUPPLY DROP

IF YOU HAVE PLAYED THE GAME ONCE AND DEEM IT INTERESTING, **IT IS HIGHLY RECOMMENDED TO PRINT OUT AT LEAST THAT FIRST EXPANSION** AS WELL... OR START WITH IT RIGHT AWAY, AS ITS ONLY 1 PAGE MORE TO PRINT.

GET IT AT THE SAME PLACE YOU GOT THE BASE GAME FROM.

BY NOW YOU HAVE PROBABLY FIGURED OUT THAT *INTERPLANETARY* IS A PRETTY GIGANTIC PROJECT FOR A FREE PRINT&PLAY GAME. YOU HAVE OUR THANKS FOR YOUR HOPEFULLY CONTINUED INTERESTED IN THE GAME.

AND YET, THE EXPANSION MENTIONED BY MY COLLEAGUE ABOVE IS ONLY SCRATCHING THE SURFACE. IF YOU ARE WILLING, THERE IS **COOPERATIVE** AND **COMPETETIVE** PLAY FOR 2 HUMANS WAITING FOR YOU, OR A **SANDBOX-MODE**, OR JUST PLENTY OF ADDITIONAL **DIRECTIVES CARDS**...

BUT ABOVE ALL ELSE, REMEMBER TO JUST HAVE FUN WITH THIS BOARD GAME, AS THAT IS ITS SOLE PURPOSE!

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INDEX OF GAME TERMS AND CONCEPTS:

THE SCIENCE BEHIND THE SQUEAK'S SOLAR SYSTEM:

THESE ARE **NOT** RULES, THE FOLLOWING PAGES JUST CONTAIN BACKGROUND INFORMATION. READ THIS **ONLY** IF YOU ARE CURIOUS ABOUT ACTUAL, REAL SPACE TRAVEL.

The biggest obstacle to real-world space travel are the enormous distances, every other problem (like high levels of radiation) pales in comparison. So, unless one manages to reach a high speed, we will not get anywhere in a reasonable amount of time and if we are not getting somewhere within a fraction of someone's lifetime, space travel is neither practical or feasible. Nobody wants to be imprisoned in a spacecraft fo decades on end, thus our craft must be fast! To reach such a high speed, we either have to accelerate incredibly fast or accelerate for a long time. The first option has various practical issues, like how to construct such a drive or engine, but there is one particular drawback that eliminates the option entirely: high acceleration will simply injure or even crush the occupants of our spacecraft! So, the second option is the only way to go, accelerating slowly over long periods of time.

This requires our craft's *thruster* to be active for a long time, so we need plenty of fuel. But the more fuel our spacecraft loads, the heavier it becomes and the heavier something gets, the harder it is to get it moving at all. This means, fuel becomes less effective when we have lots of it simply due to its own mass. *Interplanetary* models this by giving you <u>fewer</u> boxes to use...

In discussions about real-world space travel, the term *delta-v* is used to describe the spacecraft's overall capability to change both direction and speed of its movement. In *Interplanetary*, just like in real life, the *delta-v* of a craft is basically only dependent on its thruster, its fuel and its mass, restricting fuel efficiency. Sufficient *delta-v* is the main challenge of every solar journey!

The thing about *delta-v* is its, at first, unexpected relationship with solar distances: since a craft is not slowing down on its own in space, acceleration and deceleration phases are the real limiting factors, not distance! While the many celestial objects of the solar system obviously move around, they are all caught in the gravity of the sun. Therefore, while the actual distances between the planets change all the time and can vary greatly, the required *delta-v* is changing much less dramatically. Also, planet *Tree* (and our *Earth*) completes an entire round trip around the sun once a year. Therefore, at any time, the Squeaks can just wait for a few months until the planets are in a more favorable position for the trip before launching a craft. The "static" map of the game, while an approximation, is thus not too divorced from reality! The ⧗ -symbol even adequatly represents this choice in maney cases: you can either spend fuel to move now or simply wait until some of the celestial objects are in a better position, which allows you to make the trip using only negligible amounts of fuel (aka zero fuel cost ingame, for simplicity's sake).

Looking at what else is visible on the solar system map, there are various concepts that require a detailed explanation, the first being the spaces:

What is a space in this game exactly? Why can a craft stay there forever?

Consider the orbit spaces on the map first: o matter if it is from school for from watching Star Trek, most of us have some idea of what an orbit is: it is a stable *trajectory* around a source of *gravity*, like a planet. That means it is a path of movement that keeps you spinning around that gravity source indefinitely without doing anything. Chesnut here tries to give an example:

> IF YOU LOOK AT A SATELLITE IN ORBIT, THAT SATELLITE WILL BE PULLED DOWN BY THE PLANET TOWARDS ITS SURFACE. FOR ORBITING, THE SATELLITE IS ALSO MOVING VERY FAST IN A PARALLEL DIRECTION TO THE PLANET'S SURFACE! THE RESULT IS THAT THE SATELLITE IS CONSTANTLY "MISSING" ITS COLLISION WITH THE PLANET AND IF THAT SATELLITE MOVES AT THE EXACTLY CORRECT PARALLEL SPEED (DICTATED BY THE DISTANCE BETWEEN IT AND THE PLANET), THIS GOES ON FOREVER. AN ORBIT IS JUST A CONSTANT FAILURE TO CRASH!

So why a craft can stay on one of *Interplanetary*'s orbit spaces indefinitely? Because that is how orbits work! But what about the rest of the spaces?

In terms of celestial mechanics, every purple circle on the tiles is actually an orbit too! The only thing that changes is the object of reference, aka the thing that is being orbited by a craft or a moon. Think of the term *solar system*, why is it actually named that way? Well, that term refers to the system of celestial objects dominated by the solar object, in our case that is our sun (called *Sol*). The *terrestrial* or *terran system* on the other hand refers to the area of space dominated by planet *Earth* (*Terra*). In that later system, *Earth* dictates the motion of all nearby objects, such as the *Moon* (*Luna*) and the many human satellites. The *Moon* is in orbit around the *Earth* and *Earth* is in orbit around the sun. It like putting a box into a larger box: our earth has its system of influence around it and that the entire *terrestrial system* is in orbit around the sun. This is true of, for example, the *Jovian System* too, in which *Jupiter* dominates all of the myriad of moons and asteroids around itself. The *jovian system* orbits the sun, as *Sol* dominates *Jupiter*, but everything close to *Jupiter* is dominated by that planet.

So, again, every purple <u>space</u> is some form of orbit, be it around a moon, a planet or ultimately *Sol* itself. *Interplanetary*'s terminology uses *orbit* to refer to *high* or *low* orbits around celestial objects only for playability reasons. Non-orbit spaces on interplanetary tiles, in game terms, are all solar orbits, as *Sol* is the dominant source of gravity. Non-orbit spaces on planetary tiles, in game terms again, are actually *Lagrange Points*, a very special type of orbital position in which the gravitational pulls of two objects cancel out.

Being in an orbit is a state of movement and not a particular place to be. Viewed through this lens, the entire map of the solar system is actually just a depiction of such stable states, with the *delta-v* costs of moving between two of them encoded using the burn symbols ●. Movement in *Interplanetary* simply means spending *delta-v to* switch from one stable position to another.

Looking at *Interplanetary*'s solar system, it is often much cheaper to use the transitions on the top of the interplanetary tiles for longer trips. Thus, by taking a less direct route in terms of the table space in front of you, your spacecraft can get somewhere further away with less *delta-v*. Why?

In contrast to depictions of space travel in popular media (which are fun nonetheless), a real world spacecraft launched from *Earth* bound for *Saturn* would never pass by *Mars* and *Jupiter* first. That would be the less direct route, since a solar system is not a two-dimensional fixed map. In other words, using *delta-v* to reach some planet you are not interested simply wastes energy! But a board game needs its two-dimensional fixed map, therefore flying directly from *Tree* to some non-neighboring planetary tile in an efficient manner must be solved differently. The top transitions on the interplanetary tiles do exactly that: their existence ensures you always have a cheaper way to reach a planet far away than piggy-backing from neighbor planet to neighbor planet, something which no real spacecraft would do. Furthermore, the presense of these transitions also models various other (real-world) maneuvers, such as a *gravity assist* during which a spacecraft picks up speed by actually flying past some source of gravity, like a planet, without ever orbiting it. By using a network of gravitationally determined pathways throughout our solar system, we can reach many points with much less *delta-v* than we would require if we aimed for the target directly.

The final concept on the solar system map that requires a proper explanation of its scientific background are the various transition requirement types. Given what we have learned on the last page about *delta-v*, the ●, ❧ and ⧗ should already be clear, leaving the other three requirement symbols:

🔺 thruster-arrows: the thing about *delta-v* in space is that normally, you do not care if you accelerate for 5 hours, 5 days or 5 weeks. As long as fuel cost and your final speed are the same, all options are equally worthwhile. But as soon as a nearby source of gravity is involved, this is no longer true and your craft's thruster needs to be powerful enough to break your fall. Otherwise the craft currently trying to land on some planet is just going to crash on the surface! This symbol encodes such special acceleration requirements, from landing or launching, to catching up to a fast comet in time, or building up enough speed for a gravitational slingshot around *Sol* to leave the solar system.

🔥 heat: these transitions usually represent trajectories which cross into the upper parts of the atmosphere of e.g. a planet. By doing this, the craft can loose speed due to friction without needing to expend fuel. Obviously, this only works if there is an atmopshere and it is not too thin or too dangerous. Also, your craft must be able to handle the friction-induced temperatures, which explains the symbol. Close to *Sol*, this symbol also encodes the fact that that a craft needs to be able to survive the immense heat output of the star.

☢ radiation: many celestial objects capture radioactive solar particles in their magnetosphere, forming dangerous areas of intense radiation called *Van Allen* belts. Since radiation is dangerous to both equipment and living tissue (like a human or a Squeak), only proper radiation shielding allows safe passage.