

LudumDare 10

Game Design

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Table of Contents

1 The story.....	3
2 Main Game Screen.....	7
3 The Map.....	8
3.1 User interface.....	8
4 Creatures.....	9
4.1 Globbs.....	9
4.1.1 Normal State.....	9
4.1.2 Air potential state.....	9
4.1.3 Astral potential state.....	10
4.1.4 Earth potential state.....	10
4.1.5 Fire potential state.....	11
4.1.6 Water potential state.....	11
4.2 Leaders.....	12
4.3 Minions.....	12
5 Chain Reaction Effects & Logic.....	13
5.1 Tornado.....	13
5.2 Mini Portal.....	13
5.3 Boulder.....	13
5.4 Fire / water ball.....	13
6 Level design.....	14
6.1 Game modes.....	14
6.2 Game Balance.....	14
6.2.1 Mana.....	14
6.2.2 Limited globbs.....	14
7 Technical Requirements.....	15
7.1 Map.....	15
7.1.1 Graphics.....	15
7.1.2 Sound.....	15
7.2 Creatures.....	15
7.2.1 Operations.....	16
7.2.2 Graphics.....	16
7.2.3 Sound.....	16
7.3 Reactions.....	17
7.3.1 Operations.....	17
7.3.2 Graphics.....	17
7.3.3 Sound.....	17

1 The story

You are a powerful wizard. For the last 6 months you have been performing experiments with cats to try and prove a theory that you are tentatively calling *evolution*. The problem is that over the course of your experiments some of the cats have died (an unfortunate, but necessary part of the experiment).

Yesterday morning you woke up to the sounds of a mob outside your magic tower. You went out to the balcony to investigate at the head of the mob was Weebil, your arch-enemy and rival!

Weebil! I should have known you'll be the one behind this.

Weebil, rising momentarily from his permanent slouch to lock his weasel-like eyes with yours shouted up at you: This is not personal we have come to address the serious matter of you killing kittens for your experiments! . The crowd of peasants roar.

In a strong, steady voice you attempt to reason with them: You know god kills a kitten every time you masturbate, so I'm sure between you and the rest of the Arcane University more kittens have been killed than I could ever be responsible for. . The crowd falls silently and start glaring at Weebil.

Lies, damn lies! , Weebil is sweating, but just as you expect him to break and run he reaches into his robe and pulls out a scroll - Look, I have proof. This is a warrant from the Arch Dean of the Arcane University for your banishment! . The crowd roars again and you hear a crack as they break down the door to your tower.

Within moments you find yourself tied to a tree, surrounded by several apprentices from the Arcane University. Weebil appears out of the crowd, You are accused of performing inhumane magical experiments - in the name of the Arch Dean I hereby sentence you to banishment! .

You strain against the anti-magic shield the apprentices are maintaining against you, but it is in vain. A faint blue light begins to rise from the ground around Weebil, it intensifies as it turns green, then orange finally it turns into raging purple flames, as the envelope you, you scream in pain before the darkness takes you.

...

...

...

You awake with tree root poking into your side and a pounding headache - your magic also feels extremely weak. When you open your eyes you can see some blue sky through the branches of the tree, as you get up you see that the sky abruptly ends in a grey mist a mile away in three directions probably the edge of this pocket plane. You start walking into the only direction where the sky goes on into the distance.

As you walk you notice a large group of strange creatures some distance to your left they look like small, brownish cylinders, about 2 feet high, without arms or legs, yet they are extremely mobile by contracting their bodies to bounce around. Some members of the group are slightly darker than the others, you assume these to be the females as the lighter members crowd around and follow them devotedly. As you are about to continue on your explorations, one of the males becomes highly agitated at one of the other males, to your amazement he starts to glow, at first dimly and then in exponential brightness the rest of the group scatters (just in time) as the creature explodes in a ball of flame! Very strange, you think to yourself he just removed himself from the gene-pool in an attempt to destroy a rival not a very good evolutionary mechanism...

After two more miles of walking you can see the fourth wall of your prison in the distance, as you crest the hill however, you see a portal in the valley below you. After some more walking you finally approach the portal, it is made of curved, branch-like stone arches, containing a fiery portal plane. As you begin to approach, it flares up and a majestic figure with flames for beard and hair steps out of the portal, I am Zoogin Faerie King of Fire! You are in this plane as punishment for a crime and I cannot allow you to pass if you come any closer I will be forced to kill you.

You realise that your magic is not strong enough to defeat this opponent, so you retreat to the other side of the valley to ponder a strategy for your escape. You begin experimenting with your magic, but you soon find that action-at-a-distance has been severely limited on this plane you can't attack Zoogin from afar. He would certainly be vulnerable to a water attack, but he would burn you to cinder before you could get close enough.

As you sit lost in thought, a group of the strange creatures bounce up to you. You failed to notice the curious creatures until one accidentally bounces into you. As you jump up in surprise you startle it and it starts glowing bright blue you dive behind the rocks you were sitting on, just as the creature explodes with a splash! You are soaked, but now you have an idea.

You try one of the simple apprentice suggestion cantrips on one of the creatures and find that you can order it to move around. Next, you try to get it to explode, but you are frustrated in your attempts. Finally, after long hours you manage to get one to go into a catatonic state, where it is glowing bright blue, but no explosion of water occurs. In your frustration you throw a stone at the creature and boom! You're wet again, but you were able to trigger the explosion.

After several more hours of experimentation you have enumerated the different potential states you can put the creatures into:

- **Fire:** Produces a great fiery explosion.
- **Water:** Produces an explosive flood of water.
- **Earth:** Produces a localised earthquake which creates a large boulder. The boulder is completely round, so it should roll downhill.
- **Air:** Produces a tornado that sucks surrounding objects into the air.
- **Astral:** Produces a small portal that can transmit the other elemental effects to any other portal you can't seem to create more than two portals at a time, creating a third portal destroys the first one you created.

In addition to this you notice that some of these reactions can trigger certain of the other reactions or in other cases destroys the blob that was in the potential state.

Fire: Triggered by **Air**. Destroyed by **Water**.

Water: Triggered by **Earth**. Destroyed by **Fire** and **Air**.

Earth: Triggered by **Air** or **Water**. Destroyed by **Fire**.

Air: Triggered by **Earth** or **Water**. Destroyed by **Fire**.

Astral: These creatures do not need a trigger, they immediately form the portal (they seem to enjoy the process).

So the plan is simple, you will create chains of these creatures (you decide to call them globs) from the hill above the valley to the gate and attempt to create a chain reaction culminating in a water explosion at the gate that should kill Zoogin.

After defeating Zoogin you enter the portal and find yourself in another part of the pocket plane. This is clearly where Zoogin made his home, again you discover a portal in a valley this one seems dormant though. However, as you approach it a great wind rises from the portal and blows you back, a female voice shouts: I am Areia Faerie Queen of Air. I will not let a kitten murderer pass through my domain! .

You realise that air is consumed by fire, which would explain why Areia only barely came through the portal. You will have to create a fire explosion near her, but the valley is dotted with mini-volcanoes that permanently spout flame these flames will consume any air globs you place near them, which will make it hard to trigger a fire glob near the portal.

After defeating Areia, you pass through the portal into the realm of air. This realm is completely flat country, so your boulders will probably be useless. The portal is defended by the Niala Faerie Queen of Water. You could probably destroy her by evaporating her with water, or by using a tornado to blow her into the air and make a cloud out of her. This area is filled with permanent tornadoes, which may make using any globs difficult as adjacent globs moving next to a tornado are sucked up before they can turn into their potential states.

After defeating Niala, you enter the realm of water. The next gate is guarded by Drogin the Faerie King of Earth. The mountain king is a stone giant and the only way to kill him will be with a fiery explosion this would be difficult though because there are boreholes that cause sporadic floods, drowning fire globs before they can be triggered by air globs. The air globs you use to trigger fire are triggered by water, making this doubly difficult.

After defeating Drogin you enter the realm of Earth. The next portal is on a mountain, so your boulders will roll towards you. At the top of the mountain is Mer`in Faerie King of the Astral plane. He is made of aether, so to kill him you will have to subject him to all the other elemental forces in turn. The level slope looks like this: YOU////////// - - - \\ Mer`in. So you will only be able to use boulders on that last stretch. Sporadic earthquakes on this level may send some boulders rolling your way.

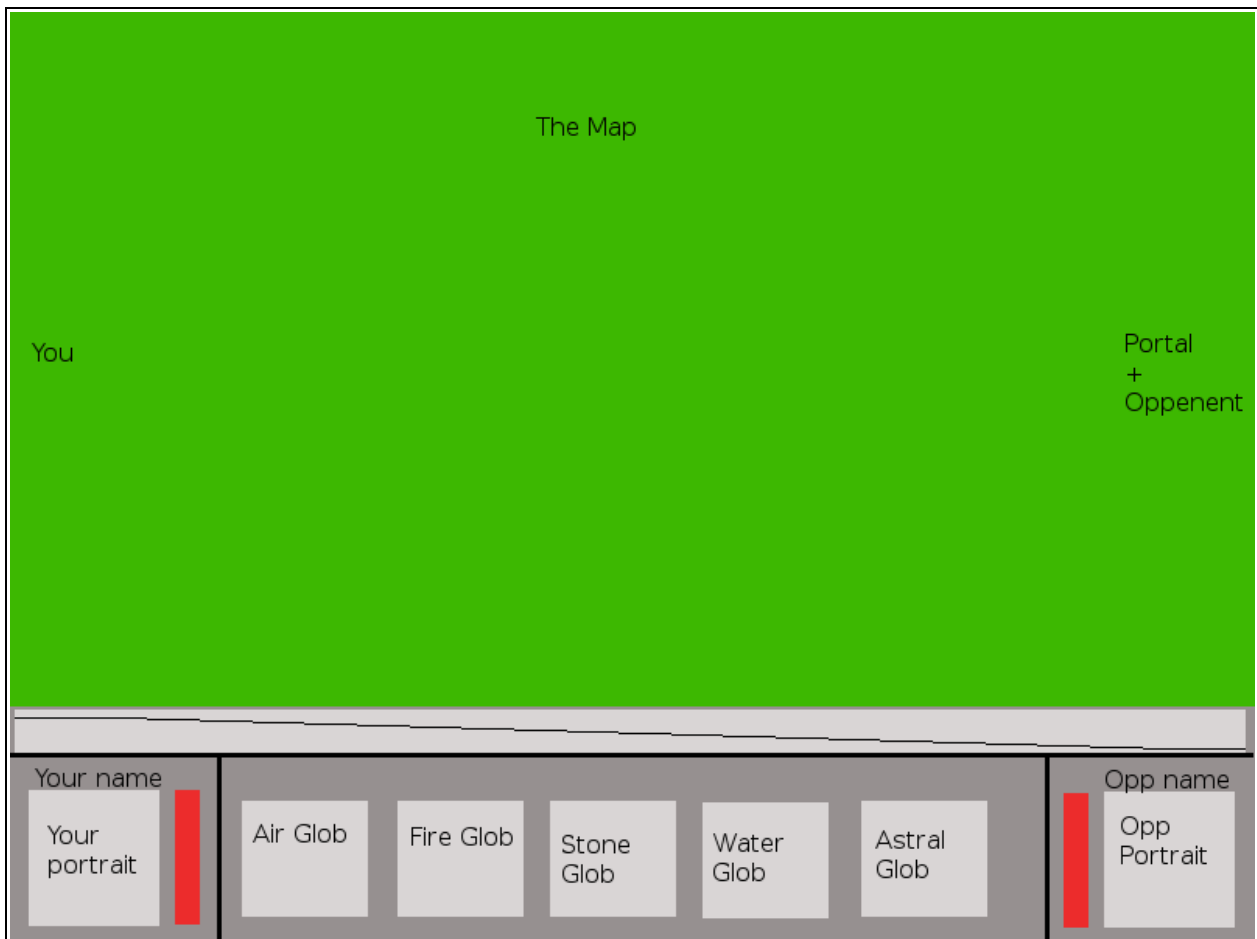
After defeating Mer`in you enter the Astral plane this plane is filled with a great confusion of the mini-portals created by the globs. At the other end of the plane you find a last portal, back to your own plane and none other than Weebil guarding it. As if that's not enough, he has had reports of your strategy and he will use globs against you.

2 Main Game Screen

This section will describe the screen you will see most of the time throughout the game. It is where the gameplay takes place and is the most important screen. The menu screens and story screens are also important from a polish point-of-view but this one will be the only one I will explicitly design ahead of implementation.

The screen is designed for a minimum resolution of 800x600 it is split into two sections:

- **Control panel:** This is the bottom 150 pixels of the screen and contains information about your health, your opponents health, the slope of the level and buttons for selecting what actions your mouse clicks on the screen will perform.
- **The map:** The area where you, your opponent and the globs are. You are stationary as is your opponent. The globs are mobile and the opponent may send minions as well.



3 The Map

The map is a simple grid-based tiled map. I will not making any attempts to do a proper top-down or side perspective, the map will have terrain tiles, but it will clearly be an abstraction (it's a weird plane OK).

Terrain will have little effect on the game and exists mostly for atmosphere. The exception is that in the elemental planes, there may be certain spots on the map where eruptions of that elemental type may occur from time to time – these will look slightly different from the rest of the terrain. All terrain is passable by globs, except for these eruption points and squares that already have a glob on them.

The last aspect of the map is actually indicated on the control panel – it is the slope of the terrain and is relevant to the player for determining in what direction boulders will roll once they are unleashed.

Since the bottom quarter of the 800x600 screen is used by the control panel, that leaves 800x450 for the map. Dividing these into 25x25 tiles gives a 32x18 tile map. The player will be on the left side of the map and will only be able to give orders to globs in his zone of control 6 tiles wide from the left side of the screen (abbreviated ZOC).

The above describes the core features that must be supported by the map. The only other feature that would be nice to have is to have grass burn when a fire glob explodes and stuff like that, but this is purely eye-candy is non-essential.

3.1 User interface

Before I get into the details of how the different globs will react, lets quickly define the user interface. The game will be completely mouse driven.

Left clicking on a **glob** that is **not yet in a potential state** will **select** it.

Left-clicking an **unoccupied spot** on the map will **de-select** any selected glob.

On the bottom of the screen, in the control panel will be 5 buttons corresponding to the 5 elemental potential states of the globs – these are **radio buttons**, so only one can be selected at a time with a **left click**.

Right clicking on an **unoccupied square in your ZOC** with **no glob selected** will charm a fresh glob from the nearly limitless supply of globs on this plane – this is how you get new globs.

Right clicking on an **unoccupied square** with a **glob selected** will instruct the glob to go to the targeted square and turn into the specified potential state (you can send globs out of your ZOC). This is provided that the target square is reachable.

Right clicking a **glob in your ZOC** that is **in a potential state** will **trigger it**, unleashing it's potential energy and potentially causing chain reactions across the map.

4 Creatures

The stars of this game are the globs. They can be in one of 6 states, and from these states different things can happen to them.

4.1 Globbs

Globs look like marshmallows with eyes and mouths they move around by bouncing themselves. They should make cute beeps and warbles as they are selected, ordered around and just before they die from chain reactions.

The colour scheme will be light grey, with purple, orange and red eyes. They have sharp pointy white teeth.

4.1.1 Normal State

In their normal states globs can move about slowly by bouncing around. They are vulnerable in this state and will be killed by any elemental energies released near them.

From this state they can go into one of the five elemental potential states, in this state they are dormant and can no longer be controlled by the player. If the appropriate triggering reaction touches them while they are in this state they will be destroyed while releasing the reaction that corresponds to their type.

4.1.2 Air potential state

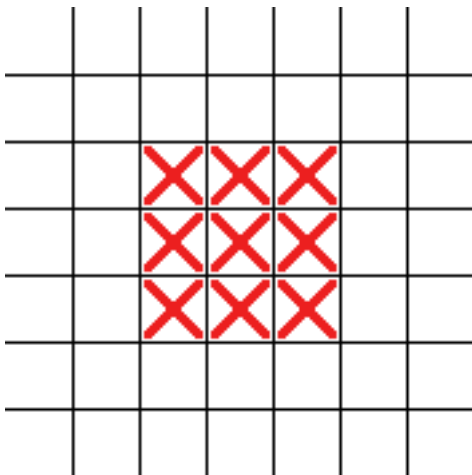
Appearance: Semi-transparent white and light blue.

Destroyed by: **Fire.**

Effect: Releases a tornado on that square that affects all surrounding squares.

Trigger: **Earth, Water.**

Reaction grid:



4.1.3 Astral potential state

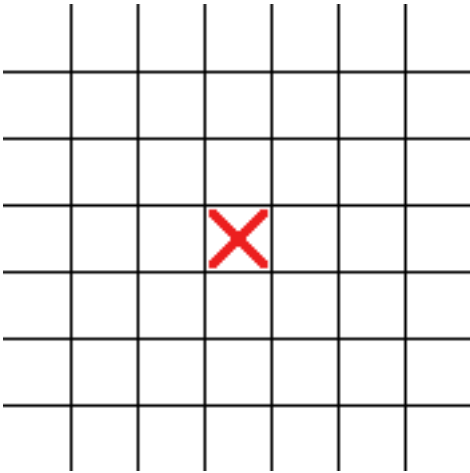
Appearance: Semi-transparent blue.

Destroyed by: **Creation of a third mini-portal.**

Effect: Creates a mini-portal. There can be up to two mini-portals on the level at a time. Creating a third destroys the first.

Trigger: **Automatically triggers when destination is reached.**

Reaction grid:



4.1.4 Earth potential state

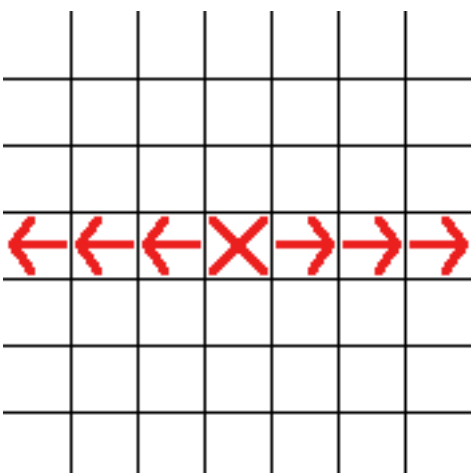
Appearance: Dark brown - cracked.

Destroyed by: **Fire.**

Effect: Releases a boulder on the square this boulder will roll left or right according to the terrain slope.

Trigger: **Air, Water.**

Reaction grid:



4.1.5 Fire potential state

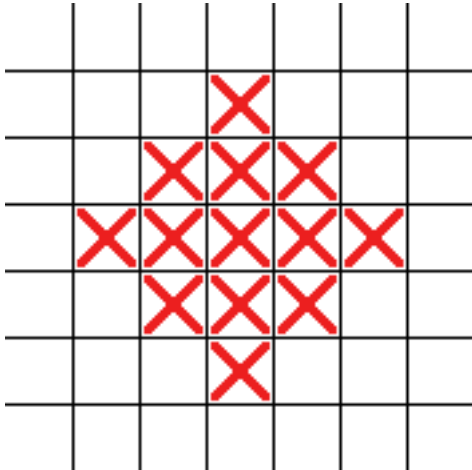
Appearance: Semi-transparent white and light blue.

Destroyed by: **Water.**

Effect: Release a explosive fireball centred on the the square with a radius of 2.

Trigger: **Air.**

Reaction grid:



4.1.6 Water potential state

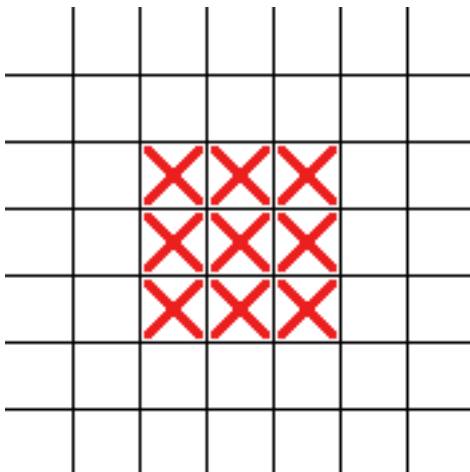
Appearance: Semi-transparent white and light blue.

Destroyed by: **Fire.**

Effect: Releases a tornado on that square.

Trigger: **Air, Earth.**

Reaction grid:



4.2 Leaders

Leaders include your wizard and all the opponents in the game. These creatures don't really do anything actively on the map they can simply take damage from chain reactions (though some may be resistant to certain reaction types and one needs to be damaged by all types in certain order).

4.3 Minions

Minions are not a required feature, they are something that may be cool to add if there is time. Basically these are creatures of the elemental type of the opponent you are fighting that try to reach your wizard to kill him or that simply disrupt your strategy by destroying your chains with their own reactions.

5 Chain Reaction Effects & Logic

Any effect entering the square of a live leader or glob will damage (potentially kill) that creature.

If two effects happen close to each other the later effect to trigger will override the reactions of the older effect.

5.1 *Tornado*

The tornado will affect all 8 squares surrounding it's square of origin for a short period of time. It will trigger any **fire** or **earth** in the affected squares.

5.2 *Mini Portal*

The mini portal will check for the existence of other mini portals and the destroy the first one that was created if there are already 2 of them.

Any glob can move onto this square if another mini-portal exists and be transported to the other mini-portal's location. A boulder that rolls into a mini portal is transported to the location of the other portal (if there is no other portal it is simply destroyed). It will continue rolling in the same direction with the same momentum.

5.3 *Boulder*

When a boulder is created, it will get an initial momentum equal to the slope of the tile it is located on. So on level ground the boulder will remain stationary and you can use it to build walls.

If a boulder has momentum in a direction, it will move in that direction adding the slope of the tile it is moving onto to its momentum thus a boulder could start going right on a downhill, encounter a steep hill and depending on how steep it is, either keep going, or turn around and come back.

It will trigger any **air** or **water** potentials it runs over, getting destroyed in the process.

5.4 *Fire / water ball*

These ball effects only effect their starting squares in the begging but then expand to surrounding squares over time, before eventually disappearing.

They will trigger the appropriate potentials when the enter a square containing a potential (or destroy them if that is appropriate).

6 Level design

The levels are already fairly well described in the introduction of this document, therefore I will not put in detailed level designs these will have to be done in the code to get them done in time.

6.1 *Game modes*

Something that may be an easy win is to add two different game modes. In **normal mode** the player starts with full health on each elemental plane, on **hardcore mode** the player is never healed, he must survive throughout the game without taking damage.

6.2 *Game Balance*

For purposes of preventing the game from being too easy it may be necessary to introduce some resource management into the game. I can think of two ways to do this (and they may even be combined).

6.2.1 **Mana**

The wizard has limited mana and it costs mana to charm globs, order globs around and trigger globs. Mana will slow recharge, so this mostly serves to slow the game down and demands a bit more planning from the player.

6.2.2 **Limited globs**

The glob population turns out not to be limitless after all. The player only has a limited number of globs with which to complete the level this could make the later elemental planes where random factors may destroy your globs really hard and frustrating.

7 Technical Requirements

7.1 Map

The map will consist of an array of tiles. Each tile needs simply store the creature or reaction that is currently on it. In addition the tile must have one of three possible slope values:

- < 0 : Slopes to the left.
- 0 : Level.
- > 0 : Slopes to the right.

7.1.1 Graphics

This can be rendered by drawing tiles of un-animated sprites which CEngine supports, so this should be very easy to do.

In terms of the slope indicator, this can simply be a line in a coloured box. The box will be provided by a sprite drawn to represent the control panel area. CEngine does not have line-drawing methods, but this is easy to do with OpenGL, so it will be easy to add.

Moving the mouse over a tile should draw a selector box over that tile so that users can clearly see what tile will be affected if they click. This box will be an animated sprite of a flashing white or light blue box, with partially open sides.

7.1.2 Sound

The only sound associated with a map may be a soundtrack (though I doubt I would have one for each map). And any ambient sound effects related to that map (provided I have time to record them).

7.2 Creatures

Creatures can have one of the 6 states described above. In addition it would be useful if the creature stores its current (x,y) position on the map. Creatures may be ordered around and must thus be able to store a queue of orders which in this game will typically be:

1. Move to position (x, y).
2. Goto state ([air, astral, fire, earth, water]).

Creatures may also die, in which case they are removed from the map. Creatures may have damage resistance so they can only be destroyed by certain reaction types.

Leaders and minions will be implemented as subclasses of this basic creature behaviour with many abilities stripped away.

7.2.1 Operations

The most important operation to get right for sprites is their movement to target tiles, this will require some path finding logic, since they cannot pass through tiles that are already occupied. A* will probably do the trick, but it's been years since I've used it so I'll have to do some quick revision.

The second operation is for the creature to trigger this destroys the creature and starts a reaction on that square, replacing the creature.

The last operation a creature has is to die for globs this an almost insignificant event, they are simply removed from the map with a sound or animation played. For leaders this is a significant event that may indicate the end of the level (won / lost).

7.2.2 Graphics

Creatures are animated sprites with different animations for different states. When a glob is standing still it will simply be rendered with some animated sprite of it doing nothing (or maybe glowing if they are in a potential state).

When moving between squares the glob will have a bouncing animation and the sprite must be drawn moving between the tiles over a period of time.

There may be a materializing animation when a blob is created (charmed) this could simply be a fade-in from fully transparent.

An animation to show when a leader is taking damage may be necessary, since it will not always be explicitly stated to the player what resistances an opponent has.

7.2.3 Sound

Globs need to be cute, but I must be careful that they are not annoying. I am thinking of giving them voices speaking plain English but in very high voices that are sped up a lot (chipmunk speak). Audio clips required may include the following:

- Low-level un-annoying warble, played randomly for idle or moving globs.
- High-pitched pick me! pick me! for a glob that has been idle a long time.
- A variety of warps and weebles for when a glob is selected or ordered to move somewhere.
- Terrified or pained screams when they die.
- Appropriate elemental sounds when the globs turn into their potential states (Choir going haaaahhmm for astral, wind blowing for air, fire crackling for fire, a large stone clattering against other stones for earth, running water for water).
- A no-can-do sound when you tell a glob to go somewhere it can't reach.
- Damage sounds for leaders.
- Spell words for the player's wizard, played when charming a glob and when activating them.
- Voices for leaders will be nice.

7.3 Reactions

Reactions need to contain information about their position on the map, their own age (since most of them fade after a short time), where they will spread to from this square (and after how long) and about what potentials they will trigger and what type of damage they do.

7.3.1 Operations

The main operations for reactions are spreading to adjacent tiles, activating any potentials there and damaging creatures. This can all be done in a single method that is called regularly.

7.3.2 Graphics

Simple animated sprites moving from square to square should be sufficient for all but the tornado and the mini-portal for these static animated sprites will be good enough.

7.3.3 Sound

The reactions should have appropriate sound effects that persist for the duration of their existence.