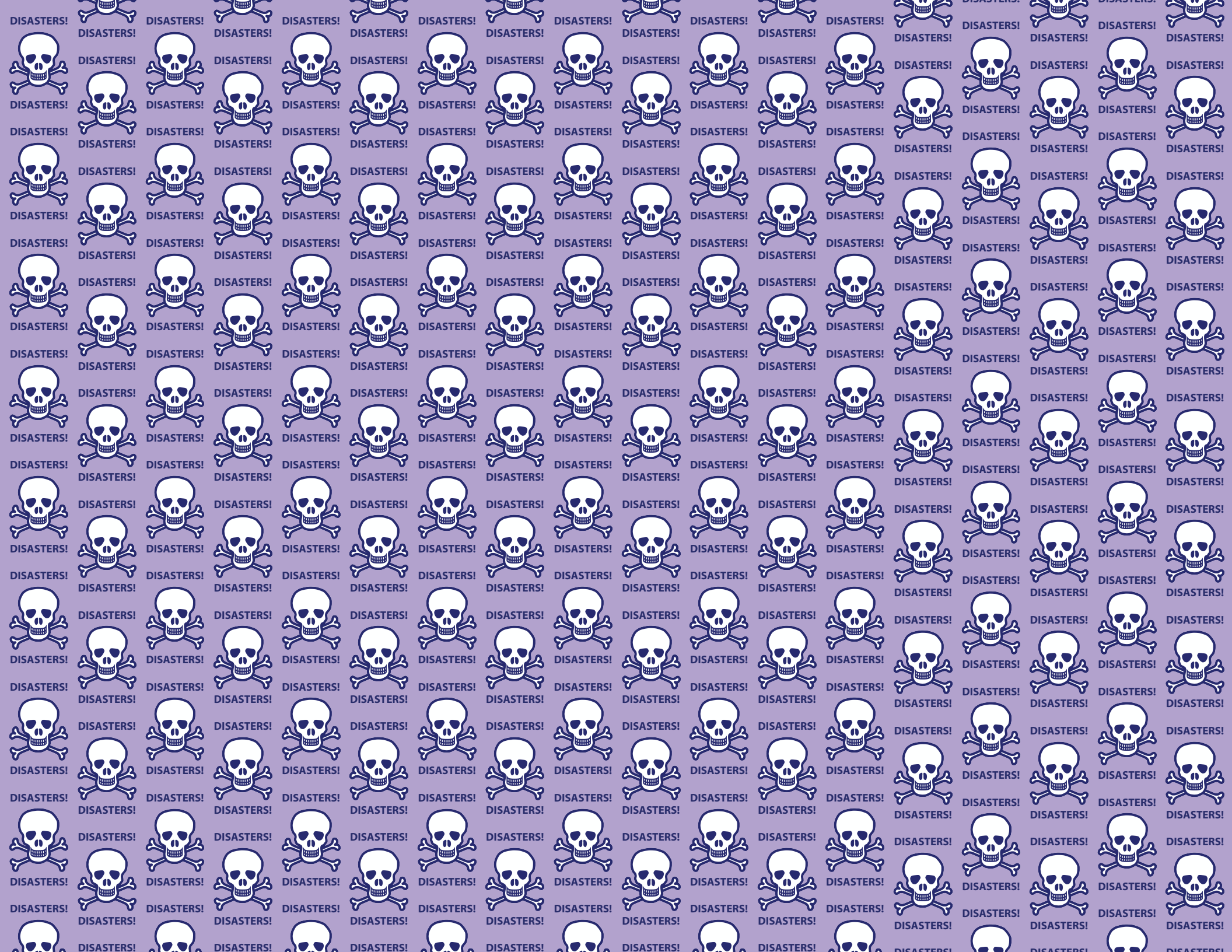
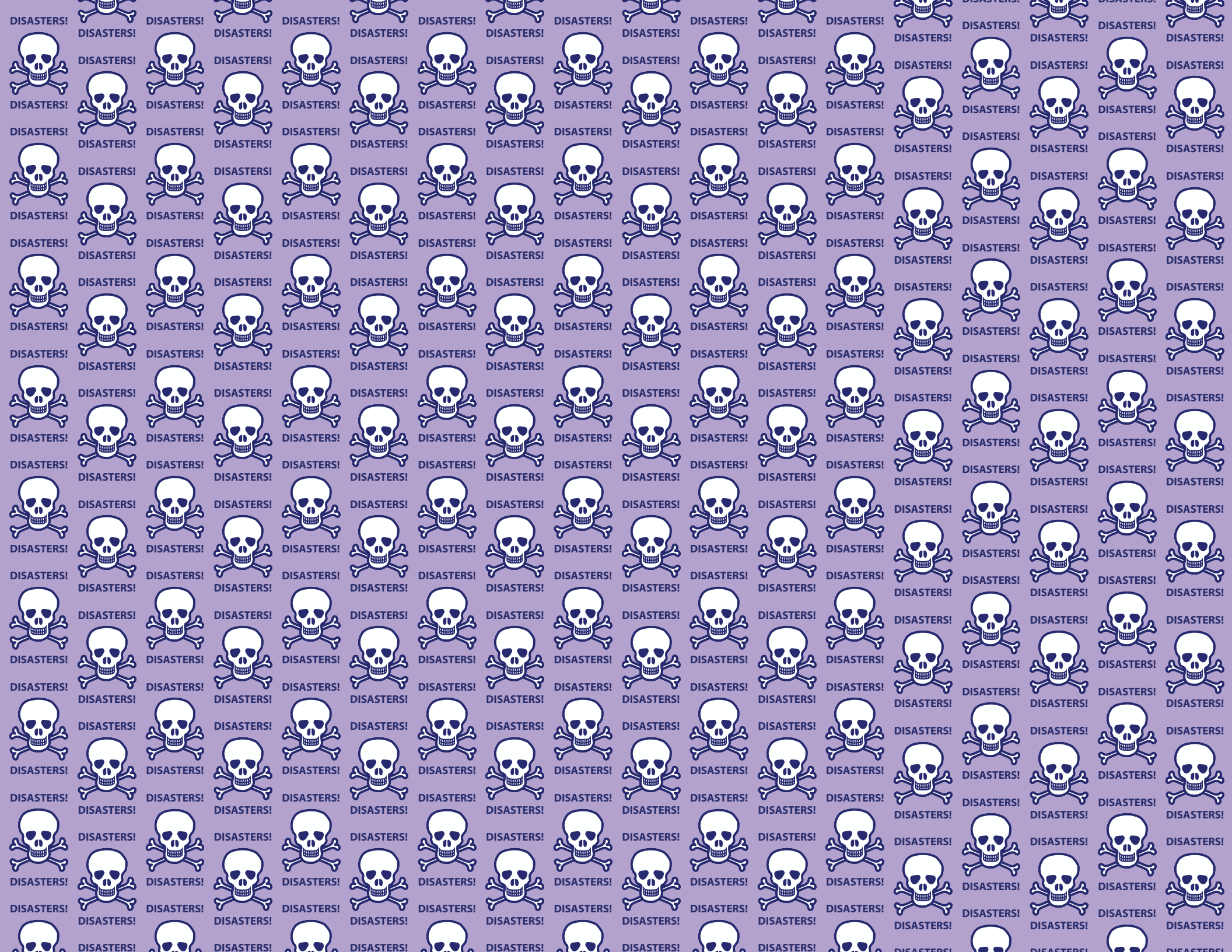


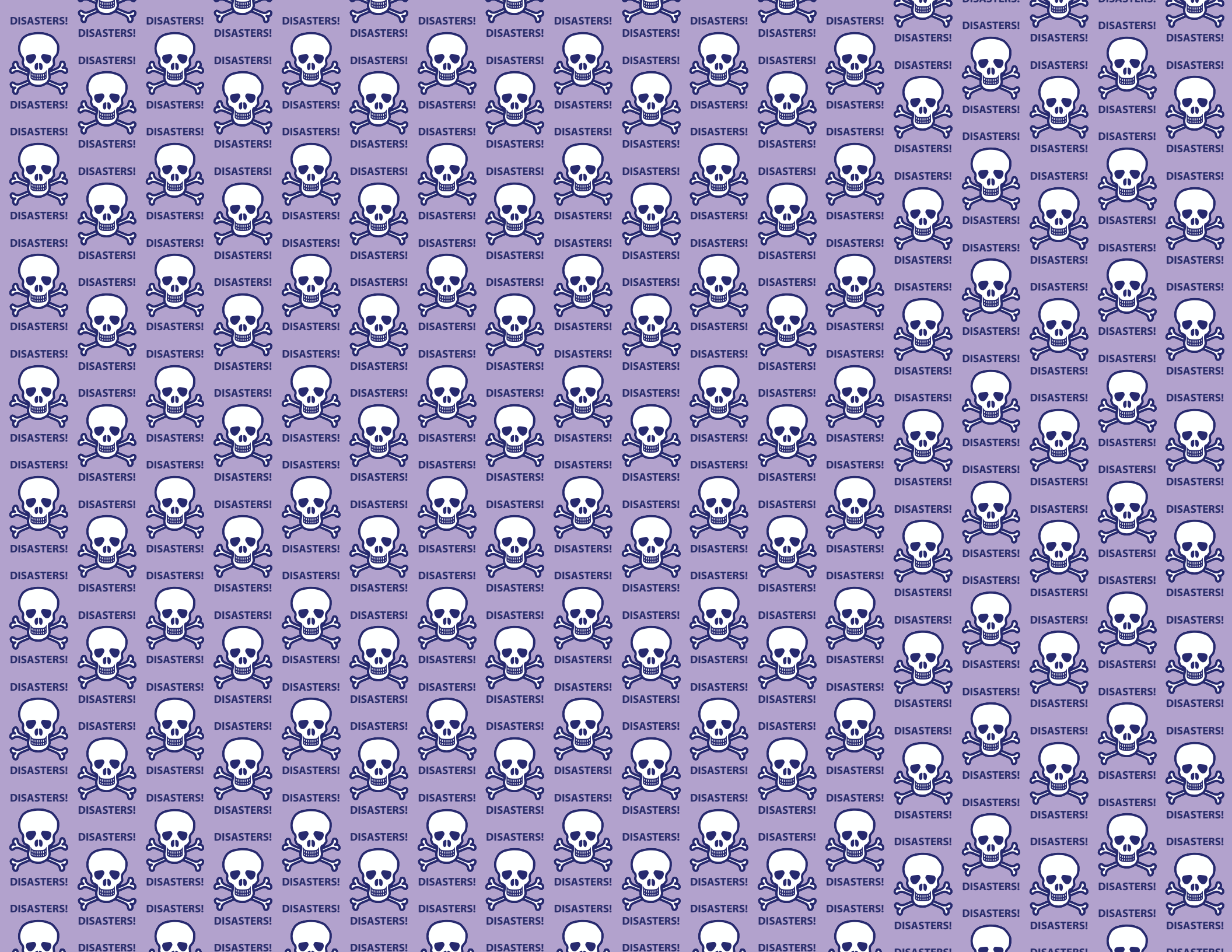
<p>Corrosive waters from below</p> <p>Ocean currents change bringing up the coldest, most acidic water from the deep ocean. Lose any reef builder (including stacked organisms) made of carbonate in the deep waters unless they have a cold or acid tolerant mutation.</p>	<p>Oceanic Anoxic Event</p> <p>Long-term warming and changes in global conditions have resulted in an oceanic anoxic event. All organisms (including stacked organisms) in the deep water depths die off unless they have a mutation for low oxygen tolerance.</p>	<p>Glaciation</p> <p>Over tens of thousands of years glaciers build up at the North and South Poles. These glaciers freeze and store water from the ocean making the sea level drop, exposing the shallow reef. Reefs lose ALL organisms (including stacked organisms) in the shallow water for one round, then the glaciers retreat, and normal sea levels return.</p>	
<p>Carbon Dioxide Pulse</p> <p>Too much carbon dioxide in the atmosphere! This change brings about warmer temperatures and more acidic conditions for thousands of years. Deep water environments experience lower pH and shallow waters experience lower pH AND higher temperatures. Reefs lose all carbonate organisms in the deep water unless they are acid tolerant AND lose all carbonate organisms in the shallow water unless they are BOTH acid and heat tolerant.</p>	<p>Global Warming</p> <p>Too much carbon dioxide in the atmosphere! This long-term change brings about warmer temperatures and more acidic conditions for thousands of years. Organisms in the deep water experience lower pH and organisms in the shallow water experience lower pH AND higher temperatures. All reefs lose any carbonate organisms in the deep water unless they have an acid tolerant mutation and lose any carbonate organisms in the shallow water unless they are tolerant of BOTH acid and heat tolerance.</p>		



<p>Bad Luck</p> <p>It's not your day, the reef gets hit with two catastrophes! Draw two cards, both events apply to all reefs (except the Coral Triangle).</p>	<p>Deep Freeze</p> <p>It's the coldest winter on record... Even here in the tropics the waters are getting chilly. Half of all reef builders in the deep water die unless they are tolerant of cooler water (e.g., they have a cold-tolerant mutation or organism characteristics).</p>	<p>Gale Force Winds</p> <p>A bad storm blows through and hits the reef with big waves! All reef builders in the shallow waters get battered by the waves and break unless they are encrusters or have strong skeletons (mutation or general characteristic). Note: if there is no land mass nearby, the storm is extra rough and so all reef builders in the shallow waters die, no matter how strong they are.</p>	<p>Heatwave</p> <p>This summer is a scorcher, with record setting temperatures around the region! Half of all reef builders in the shallow water die unless they are tolerant of warmer water (e.g. they have a heat-tolerant mutation or organism characteristics).</p>
<p>Hurricane (hit)</p> <p>Batten down the hatches, it's hurricane season! A bad tropical storm blows through and hits the reef! All reef builders in the shallow waters get battered by the waves and break unless they are encrusters or have strong skeletons (mutation or general characteristic). Delicate organisms in the middle depth (or those with a weakened skeleton) also break and die.</p>	<p>Hurricane (near miss)</p> <p>A bad tropical storm blows through, missing the reef but making landfall nearby. Lots of rainwater runs over the land and floods the rivers, delivering freshwater and too many nutrients to the reef! The freshwater kills off all your sea urchins and the nutrients cause fleshy algae to take over all spaces on the board closest to the land unless that organism has a high nutrient tolerant mutation. Note: if there is no land mass, the rain (freshwater) still kills off all your sea urchins!</p>	<p>Spring Hypoxia</p> <p>Spring rains bring nutrients and freshwater into the ocean. As microbes gobble up the nutrients, they deplete the water of oxygen causing a short-term hypoxic event. All organisms on the spaces of the board closest to the land die off unless they have a mutation for low oxygen tolerance. Microbialites and fleshy algae survive.</p>	<p>Invasive Fleshy Algae</p> <p>A bad algal bloom takes over your reef! Roll the dice to see which row of your reef is affected, then place five Fleshy Algae on that row of your game board (covering any reef builders in the way)! A 1 means the Fleshy Algae take over the first row (the one closest to you), a 2 means the Fleshy Algae take over the second row, 3 = third row, and so on (for 7 through 12, subtract 6 from the roll, i.e., 7 - 6 = 1, 12 - 6 = 6, etc).</p>



<p>Invasive Species</p> <p>A fast-growing coral takes over part of your reef! Roll the dice to see which row of your reef is affected and remove everything from that row (reef dwellers are not affected); then place five Finger Corals on that row of your game board! A 1 means the corals take over the first row (the one closest to you), a 2 means the corals take over the second row, 3 = third row, and so on (for 7 through 12, subtract 6 from the roll, i.e., 7 - 6 = 1, 12 - 6 = 6, etc).</p>	<p>Nutrification</p> <p>After a large rainstorm, nutrients from nearby landmasses flood into the ecosystem, polluting the reef! All spaces on the board closest to the land are overgrown by fleshy algae unless the organism is tolerant of high nutrients (cover builders with fleshy algae).</p> <p>Note: if there is no land mass, you're ok!</p>	<p>Predator on the loose</p> <p>Swim away! Some very hungry predator has come along and eaten up all the fish on your reef; without these fish, fleshy algae start to overgrow your reef. Remove all the fish from all reefs for this round of play and add three fleshy algae to each reef.</p>	<p>Reproductive Stress</p> <p>Conditions are stressful for your reef builders and reproduction slows down. Remove all "More Offspring" mutations from all reef builders on the table.</p>
<p>Tsunami warning</p> <p>The Earth quakes and there's a massive tsunami! Encrusters and reef builders with strong skeletons survive. Half of the remaining reef builders in shallow and medium water depths break and die.</p>	<p>Urchin Disease</p> <p>A nasty disease rips through the waters killing off all the sea urchins on your reef. Without the urchins, fleshy algae start to overgrow your reef; add two fleshy algae to each reef.</p>	<p>Calm Seas</p> <p>Continue playing, no disasters today!</p>	<p>Coral Disease</p> <p>A nasty disease rips through the reef killing off all of the most abundant corals on your reef (i.e., the coral with the most 'individuals' is the one impacted by the disease, if it's a tie, choose which one you will sacrifice).</p>



<p>Predator on the loose</p> <p>Swim away! Some very hungry predator has come along and eaten up all the fish on your reef. Remove all the fish from all reefs for this round of play.</p>	<p>Pollution</p> <p>The crystal-clear waters of your reef are getting dirty! Sediments and nutrients from the land nearby got dumped onto your reef ecosystem! All organisms with zooxanthellae within two squares of land die unless they have a mutation that makes them tolerant of EITHER high nutrients or a high sediment load).</p> <p>Note: if there is no land mass, you're ok!</p>	<p>Recruitment Problem</p> <p>Your reef is fine this round, but no new reef dwellers can be recruited in the following round.</p>	