

Sir Toma's Magic Site Analysis [OLD, see the link below instead]

New version: <https://docs.google.com/spreadsheets/d/1Pvi642Vg3xV9zXjed-5ntISOA3N32h4zGjWHpn0exEU/edit?usp=sharing>

Credits for inspiration and knowledge:

Taorec <http://dominionsmods.com/index.php?showtopic=3532>
frondeur de rhodes <https://docs.google.com/spreadsheets/d/1Cn6bUIFEV00rAQ5yVfVXq6RwUdPogvCP8BkIFv1m7I/edit#gid=742249415>
Mandarbmaw, Lucid, and Nosy Proof-reading, and feedback

Things to note:

Unique sites haven't been accounted for and are treated as per normal. This should be fairly even as most gem types have similar amounts of unique sites at similar levels, though could potentially change the results. If anyone has ideas on how to account for them please let me know.
The 'Coastal' terrain tag has been completely ignored. A small number of water sites are only present on coasts.
A small number of sites had no tag at all. These seemed to be sea related (possibly kelp forest?) and have been assigned mostly been assigned to seas

To calculate the overall amount of gems available in an arbitrary game I have used the default province breakdown from the MapNuke generator assuming only land nations and the site frequencies found in Taorec's post above. If anyone has more accurate figures I will gladly update them. This is labeled as the "Expected NUW Total"
If you have any suggestions of feedback feel free to reach out to SirToma#8442 on discord.

To Do:

Add more case studies if desired.
Improve calculation of expected number of sites per province type.

What is displayed on the results pages:

Terrain Breakdown

Shows the expected gem (EG) find (all types) for a given level/element search for a certain terrain type per site that exists.
Multiplying the EG value by the average amount of sites for the province type should give you a measure of the expected gem return from a site searching turn
E.g. If there are on average 2 sites per plains province (Taorec's small test suggests this for MA) then searching with a L2 fire mage gives an expected income of 0.282 gems per turn (as level 0 sites are always known), while searching with a level 3 gives an expected income of 0.324 gems per turn. This further suggests that searching with a L3 fire mage in a province that has already been searched to L2 is worth 0.042 gems per turn.
This value can also be used to calculate a rate of return on remote site searching.
This section also contains an "Expected NUW total". This is an estimate of the expected gems per turn per province given a specified terrain distribution. Multiplying this by the number of provinces on the map will give an estimate of the total gems available for an element

Gem Breakdown:

This section shows the breakdown of the gems found from searching this particular element
Currently the overall value is all that is displayed, but the data is available to break it down by level and terrain type if desired

Findings:

The findings page has some general conclusions I've extracted from the data.
These are my opinion and should probably be taken with a grain of salt, especially in light of the 'Things to note' above.

Changelog:

v2
Updated province breakdown to MapNuke defaults
Added section on Voice of Tiamat separate to other remote search spells
Added a section discussing search priority when there are known scales in a province from a site
v3
Nice formatting
Actually included nature findings
Corrected province breakdown
Added example site searching decisions

Cross Element Searching

Fire and Astral searching are very unlikely (comparatively) to generate an income in another element
Air searching has a chance to generate a small Nature and Death income

Water searching has a chance to generate a small fire and astral income and a better chance for earth and death

Earth searching has a chance to generate a small Nature and Fire income, and a very good chance of generating astral pearls
Nature searching has a small chance to generate air, earth, astral and death gems
Death searching has a small chance of generating water or nature

Overall Gem Availability

Assuming a terrain breakdown based on the default NukeMap values and only land nations.

	<i>Plains/High Swamps</i>	<i>Wastes</i>	<i>Caves</i>	<i>Farms</i>	<i>Forests</i>	<i>Mountains</i>	<i>Lakes (Sea)</i>	
Percent of map	36%	5%	5%	6%	15%	17%	7%	9%
Weighted Site Locations	0.36	0.06	0.06	0.07	0.12	0.19	0.08	0.09

Changing the above values will alter the "Expected NUW Total" values on the individual result sheets

Death and Earth searching gives the best return by a not insignificant margin, 0.21 vs 0.17 for fire, astral, and nature. This is a 21% increase!

Water also has a low return above ground, but makes up for it by being very abundant in both sea and deep sea provinces which would be more prevalent in a game with UW nations.

Additionally you don't need to search any deeper than for the other elements to get this

Searching Case Study

Below is a breakdown of each element. Overall the general theme is that searching with a level 2 is sufficient for most terrain/element combinations.

While a level 3 is preferable the differences are on the order of 0.02 to 0.04 EG per turn. Therefore it is unlikely to be worth re-searching if you have searched with a level 2 previously outside of specific cases.

As a case study let's consider early game MA Marignon to highlight the point.

Around turn 6 you have a Witch Hunter (F2S1) available, and on turn 13 you have a Grand Master (F3S3) available. What is the benefit of searching with the Witch Hunter compared to waiting for a more complete search from the Grand Master? (Assuming all provinces are plains)

Witch Hunter:	EG per fire search	0.135
	EG per astral search	0.099
Grand Master:	EG per fire search	0.156
	EG per astral search	0.17

For fire the Witch Hunter will get 3 searches in prior to the Grand Master, generating 0.405 EG. The Grand Master generates 0.021 additional EG per search. Therefore searching with the Witch Hunter (and not re-searching later) is beneficial for 20 turns.

For astral the Witch Hunter will get 3 searches in prior to the Grand Master, generating 0.297 EG. The Grand Master generates 0.071 additional EG per search. Therefore searching with the Witch Hunter (and not re-searching later) is beneficial for only 5 turns, and 5 turns later we are ~6 gems per turn worse off (assuming two sites per province).

Based on this it is not really worthwhile to re-search for fire with the grand master, but it is worth doing for astral. Luckily the Grand Master is a two path mage, so you can get the best of both worlds without any real loss of efficiency. In this case I would search with the Witch Hunter ASAP and then re-search with an S3 Grand Master when possible.

Remote Site Searching

The return on investment of remote searching spells is very poor if you have consistent access to the path and are not concerned about turn economy. If you have multipath mages for that element then even the turn economy benefit is mostly lost

For example remote searching astral as LA Pan (only S1 access) will give a return of 0.164 pearls per turn on average for a plains province (assuming two sites on average). This takes 19 turns to repay itself and is basically the best example I could argue for with the data for the standard remote searches.

Voice of Tiamat is potentially an exception here. If you haven't searched a province at all it has a return of 0.894 gems/cast/site freq. in deep sea and 0.523 in normal seas. This gives a positive expected return in 5 and 8 turns respectively assuming 2 sites per province, which is very reasonable. (Credit to Nosy for spotting this).

This can be deceiving, however, as all water nations are able to search up to W2 immediately. Doing this prior to casting would lower the return to 0.582 and 0.327 gems/cast/site freq. and an expected 7 and 13 turn payback period (once again assuming two sites on average).

This is still one of the best deals from remote searches and could be likely worthwhile depending on your path access and diligence in site searching early. Being able to search for gems in paths you don't yet have access to is likely valuable beyond what the raw numbers would indicate.

The return continues to get worse the more elemental paths you have available to you (having a W2+F1+ mage like Atlantis strips out the majority of the return).

Terrain Searching

Fire

Ideally search with a level 3 mage everywhere (on land), though a level 2 is not much of a downgrade and it is likely not worth the turn to L3 a province that has already been searched by an L2

Underwater a level 1 mage is sufficient

Waste and Deep Sea have the best return, so it may be worth remote searching for F in deep sea if you can't get a mage down there easily.

Air

Ideally search with a level 3 mage everywhere (on land), though a level 2 is not much of a downgrade and it is likely not worth the turn to L3 a province that has already been searched by an L2 (caves may be an exception here).

It is barely worth searching sea provinces. If you do a level 1 search is sufficient

Water

Ideally search with a level 2 mage underwater and in caves, though a level 1 mage doesn't miss much and it may not be worth going back over later.

Above ground a level 3 mage should be used as there are a significant number of gems in level 3 only sites (three rarity 0 ones are available for above ground provinces).

Deep sea, sea, and swamps are the best income terrains, though all are pretty balanced.

Earth

Level 3 is recommended for Caves and Deep Sea

Elsewhere it is nice to have but level 2 also covers most things and it is likely not worth going back to search level 3 later.

Caves and Deep Sea have huge expected returns but are relatively rare. It is likely worth remote searching if you can't get a level 3 earth mage to your deep sea provinces.

Astral

The presence of the Unfound Door site (level 4, rarity 0) makes searching with a level 4 actually beneficial over a level 3, but the expected income difference is so low that I don't think remote searching is worth it unless you only have level 1s (and even then the return on Arcane Probing is VERY low as the example above shows)

Wastelands, Deep Sea, and Caves can't have this site so cap out at level 3 like the other gem types. Once again though level 2s are likely sufficient in these locations.

Death

While searching to level 3 looks optimal much of the jump (0.01 of 0.03) is exclusively due to the well of pestilence site (level 3, rarity 0).

As this site is usually easy to detect without searching (due to disease and death scales) it is only worth searching to level 2 above ground unless you suspect a well.

Caves and seas are likely only worth searching at level 2, and for deep sea level 1 is sufficient

Nature

Worth searching to level 3 if possible but as always if you have searched to level 2 the extra level may not be worth the turns. Caves and seas cap out at level 2 and deep sea caps out at level 1.

Sea provinces can contain the Kelp Fortress site, which gives a free fort (level 1 rarity 0). You should search N1+ ASAP to save yourself on infrastructure costs if possible as an UW nation.

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.157	100%	0.175	100%	0.168	100%	0.159	100%	0.154	100%	0.204	100%	0.167	100%	0.165	100%	0.103	100%	0.191	100%
4	0.157	100%	0.175	100%	0.168	100%	0.159	100%	0.154	100%	0.204	100%	0.167	100%	0.165	100%	0.103	100%	0.191	100%
3	0.156	100%	0.175	100%	0.168	100%	0.159	100%	0.154	100%	0.203	99%	0.167	100%	0.165	100%	0.103	100%	0.191	100%
2	0.146	93%	0.154	88%	0.147	88%	0.142	90%	0.135	88%	0.182	89%	0.148	88%	0.145	88%	0.101	98%	0.191	100%
1	0.118	75%	0.117	67%	0.110	66%	0.108	68%	0.099	64%	0.137	67%	0.108	65%	0.099	60%	0.101	98%	0.191	100%
0	0.013	8%	0.019	11%	0.019	12%	0.015	10%	0.016	11%	0.027	13%	0.018	11%	0.040	24%	0.000	0%	0.000	0%

Expected NUW Total 0.17

Gem Breakdown

All Terrains		Air	Water	Earth	Astral	Nature	Death
Fire	0.126	0.006	0.006	0.004	0.007	0.002	0.005

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.159	100%	0.199	100%	0.196	100%	0.186	100%	0.207	100%	0.229	100%	0.177	100%	0.083	100%	0.043	100%	0.032	100%
4	0.159	100%	0.199	100%	0.196	100%	0.186	100%	0.207	100%	0.229	100%	0.177	100%	0.083	100%	0.043	100%	0.032	100%
3	0.159	100%	0.197	99%	0.196	100%	0.186	100%	0.207	100%	0.229	100%	0.177	100%	0.083	100%	0.043	100%	0.032	100%
2	0.142	89%	0.169	85%	0.168	86%	0.164	88%	0.175	84%	0.194	85%	0.151	85%	0.043	52%	0.042	96%	0.032	100%
1	0.102	64%	0.116	58%	0.115	59%	0.113	61%	0.124	60%	0.127	56%	0.096	54%	0.043	52%	0.040	93%	0.032	100%
0	0.009	6%	0.009	5%	0.009	5%	0.007	4%	0.017	8%	0.009	4%	0.009	5%	0.005	6%	0.000	0%	0.000	0%

Expected NUW Total 0.18

Gem Breakdown

All Terrains		Air		Water		Earth		Astral		Nature		Death	
Fire	0.003	0.125	0.006	0.006	0.003	0.008	0.009						

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.218	100%	0.164	100%	0.169	100%	0.191	100%	0.185	100%	0.185	100%	0.204	100%	0.186	100%	0.197	100%	0.303	100%
4	0.218	100%	0.164	100%	0.169	100%	0.191	100%	0.185	100%	0.185	100%	0.204	100%	0.186	100%	0.197	100%	0.303	100%
3	0.217	100%	0.163	99%	0.167	99%	0.190	99%	0.184	99%	0.183	99%	0.203	99%	0.183	98%	0.197	100%	0.303	100%
2	0.198	91%	0.121	73%	0.125	74%	0.156	82%	0.148	80%	0.142	77%	0.164	80%	0.182	98%	0.194	99%	0.303	100%
1	0.167	77%	0.101	61%	0.100	59%	0.131	69%	0.116	63%	0.118	64%	0.145	71%	0.154	83%	0.180	91%	0.280	93%
0	0.011	5%	0.003	2%	0.003	2%	0.002	1%	0.003	1%	0.003	2%	0.003	1%	0.006	3%	0.024	12%	0.031	10%

Expected NUW Total 0.18

Gem Breakdown

All Terrains		Air		Water		Earth		Astral		Nature		Death	
Fire	0.008	0.005	0.167	0.013	0.009	0.005	0.010						

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.204	100%	0.204	100%	0.207	100%	0.179	100%	0.242	100%	0.199	100%	0.190	100%	0.303	100%	0.176	100%	0.372	100%
4	0.204	100%	0.204	100%	0.207	100%	0.179	100%	0.242	100%	0.199	100%	0.190	100%	0.303	100%	0.176	100%	0.372	100%
3	0.203	100%	0.203	100%	0.206	100%	0.178	100%	0.241	100%	0.197	99%	0.189	100%	0.301	99%	0.176	100%	0.372	100%
2	0.187	92%	0.182	89%	0.185	89%	0.161	90%	0.213	88%	0.177	89%	0.169	89%	0.260	86%	0.152	86%	0.342	92%
1	0.136	67%	0.130	64%	0.129	62%	0.114	63%	0.151	62%	0.122	61%	0.121	64%	0.227	75%	0.137	78%	0.271	73%
0	0.204	100%	0.204	100%	0.207	100%	0.179	100%	0.242	100%	0.199	100%	0.190	100%	0.303	100%	0.176	100%	0.372	100%

Expected NUW Total

0.21

Gem Breakdown

All Terrains		Air		Water		Earth		Astral		Nature		Death	
Fire	0.008	0.004	0.007	0.150	0.018	0.009	0.006						

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.126	100%	0.184	100%	0.183	100%	0.150	100%	0.162	100%	0.142	100%	0.176	100%	0.150	100%	0.128	100%	0.152	100%
4	0.125	100%	0.184	100%	0.183	100%	0.150	100%	0.162	100%	0.142	100%	0.176	100%	0.150	100%	0.128	100%	0.152	100%
3	0.120	95%	0.173	94%	0.172	94%	0.141	94%	0.152	94%	0.142	100%	0.166	94%	0.150	100%	0.104	81%	0.152	100%
2	0.112	89%	0.161	87%	0.160	87%	0.131	88%	0.142	87%	0.118	83%	0.155	88%	0.132	88%	0.103	81%	0.130	86%
1	0.073	58%	0.102	56%	0.102	56%	0.081	54%	0.087	54%	0.082	58%	0.095	54%	0.106	71%	0.096	75%	0.080	53%
0	0.002	2%	0.003	2%	0.003	2%	0.002	1%	0.002	1%	0.003	2%	0.003	1%	0.005	3%	0.000	0%	0.000	0%

Expected NUW Total 0.17

Gem Breakdown

All Terrains		Air		Water		Earth		Astral		Nature		Death	
Fire	0.002	0.002	0.004	0.005	0.106	0.002	0.003						

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.210	100%	0.155	100%	0.154	100%	0.271	100%	0.136	100%	0.142	100%	0.155	100%	0.065	100%	0.234	100%	0.049	100%
4	0.210	100%	0.155	100%	0.154	100%	0.271	100%	0.136	100%	0.142	100%	0.155	100%	0.065	100%	0.234	100%	0.049	100%
3	0.208	99%	0.153	99%	0.153	99%	0.269	99%	0.135	99%	0.139	98%	0.153	99%	0.065	100%	0.234	100%	0.049	100%
2	0.189	90%	0.122	79%	0.121	79%	0.233	86%	0.108	79%	0.109	77%	0.124	80%	0.064	97%	0.234	100%	0.049	100%
1	0.147	70%	0.102	66%	0.102	66%	0.178	66%	0.086	63%	0.091	64%	0.102	66%	0.062	95%	0.182	78%	0.049	100%
0	0.022	10%	0.000	0%	0.000	0%	0.016	6%	0.000	0%	0.001	0%	0.003	2%	0.040	61%	0.027	11%	0.000	0%

Expected NUW Total 0.18

Gem Breakdown

All Terrains		Air	Water	Earth	Astral	Nature	Death
Fire	0.003	0.011	0.003	0.009	0.009	0.166	0.010

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.178	100%	0.205	100%	0.204	100%	0.220	100%	0.192	100%	0.203	100%	0.227	100%	0.154	100%	0.215	100%	0.114	100%
4	0.178	100%	0.205	100%	0.204	100%	0.220	100%	0.192	100%	0.203	100%	0.227	100%	0.154	100%	0.215	100%	0.114	100%
3	0.177	99%	0.204	99%	0.202	99%	0.218	99%	0.190	99%	0.202	99%	0.226	99%	0.151	98%	0.215	100%	0.114	100%
2	0.161	90%	0.170	83%	0.169	83%	0.191	87%	0.160	83%	0.168	83%	0.195	86%	0.146	95%	0.201	93%	0.114	100%
1	0.119	67%	0.105	51%	0.104	51%	0.131	60%	0.104	54%	0.099	49%	0.135	59%	0.050	33%	0.171	79%	0.114	100%
0	0.007	4%	0.007	3%	0.007	3%	0.005	2%	0.006	3%	0.006	3%	0.009	4%	0.005	3%	0.000	0%	0.018	16%

Expected NUW Total

0.21

Gem Breakdown

All Terrains		Air		Water		Earth		Astral		Nature		Death	
Fire	0.003	0.002	0.013	0.003	0.004	0.011	0.143						

Terrain Breakdown

Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.014	100%	0.012	100%	0.009	100%	0.011	100%	0.013	100%	0.011	100%	0.017	100%	0.013	100%	0.000	#DIV/0!	0.000	#DIV/0!
4	0.014	100%	0.012	100%	0.009	100%	0.011	100%	0.013	100%	0.011	100%	0.017	100%	0.013	100%	0.000	#DIV/0!	0.000	#DIV/0!
3	0.014	100%	0.012	100%	0.009	100%	0.011	100%	0.013	100%	0.011	100%	0.017	100%	0.013	100%	0.000	#DIV/0!	0.000	#DIV/0!
2	0.014	100%	0.012	100%	0.009	100%	0.011	100%	0.013	100%	0.011	100%	0.017	100%	0.013	100%	0.000	#DIV/0!	0.000	#DIV/0!
1	0.012	87%	0.009	72%	0.006	63%	0.008	70%	0.010	77%	0.008	72%	0.013	79%	0.011	83%	0.000	#DIV/0!	0.000	#DIV/0!
0	0.000	0%	0.000	0%	0.000	0%	0.000	0%	0.000	0%	0.000	0%	0.000	0%	0.000	0%	0.000	#DIV/0!	0.000	#DIV/0!

Gem Breakdown

All Terrains		Air	Water	Earth	Astral	Nature	Death
Fire	0.000	0.003	0.001	0.001	0.001	0.003	0.005

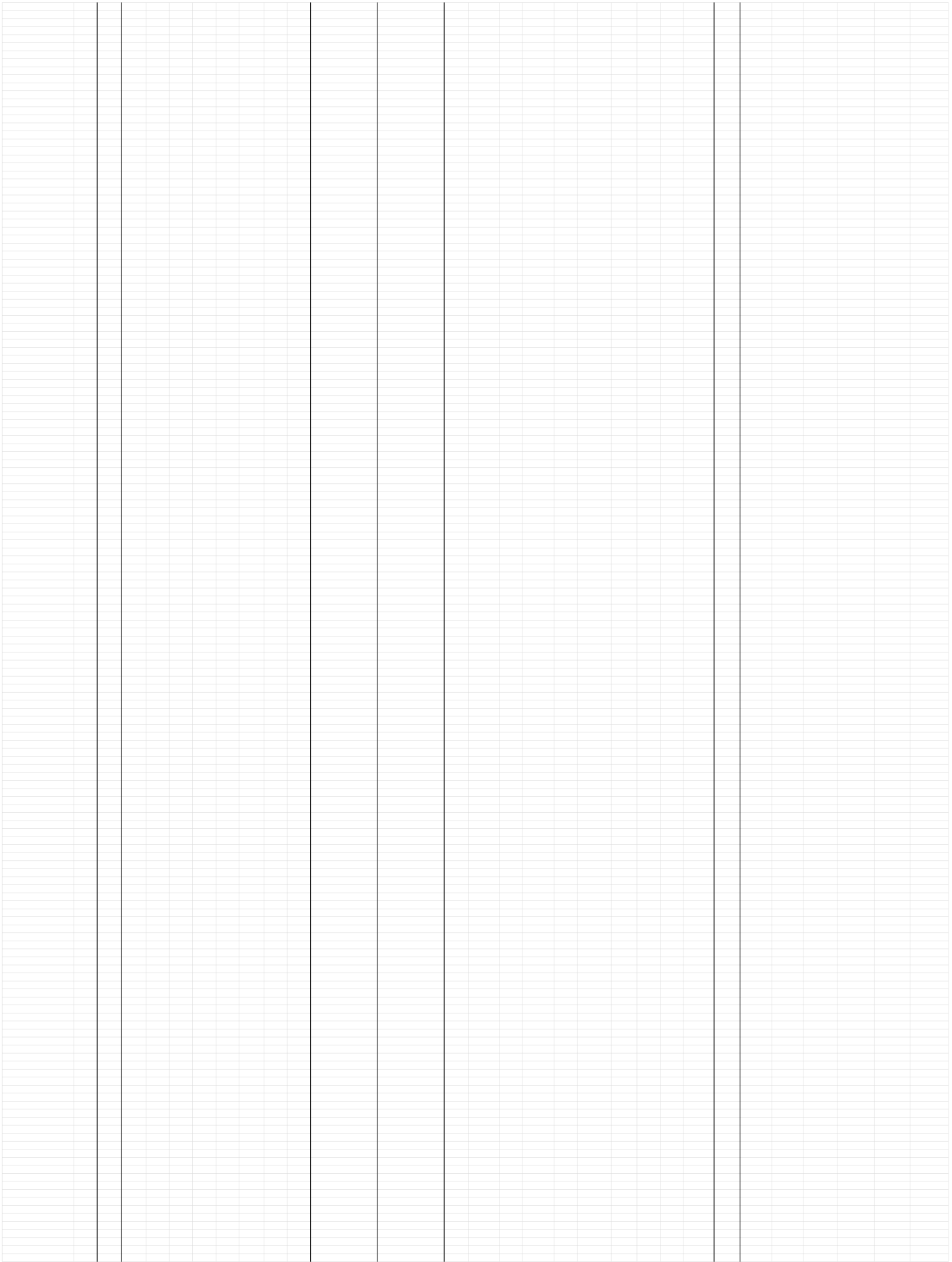
Terrain Breakdown

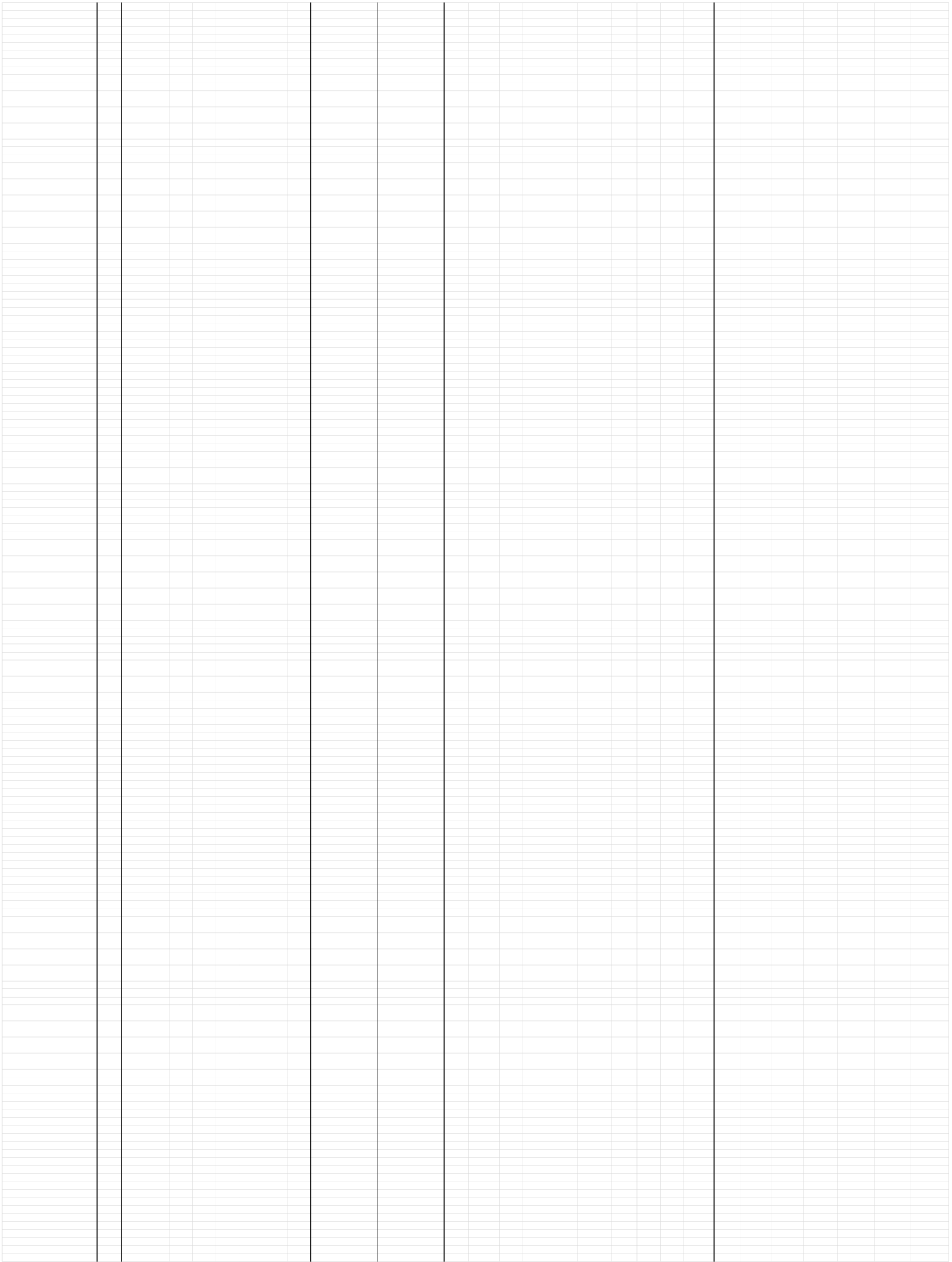
Search Level	ALL		Plains		Farmland		Forest		Mountain		Wasteland		Swamp		Cave		Sea		Deep Sea	
	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio	EG	Ratio
9	0.018	100%	0.025	100%	0.025	100%	0.020	100%	0.021	100%	0.024	100%	0.023	100%	0.044	100%	0.048	100%	0.062	100%
4	0.018	100%	0.025	100%	0.025	100%	0.020	100%	0.021	100%	0.024	100%	0.023	100%	0.044	100%	0.048	100%	0.062	100%
3	0.018	99%	0.024	98%	0.024	98%	0.019	98%	0.021	98%	0.023	98%	0.023	98%	0.044	100%	0.048	100%	0.062	100%
2	0.013	73%	0.013	53%	0.013	53%	0.010	53%	0.011	53%	0.013	53%	0.012	53%	0.023	53%	0.048	100%	0.062	100%
1	0.012	66%	0.010	41%	0.010	41%	0.008	41%	0.009	41%	0.010	41%	0.009	41%	0.017	39%	0.048	100%	0.062	100%

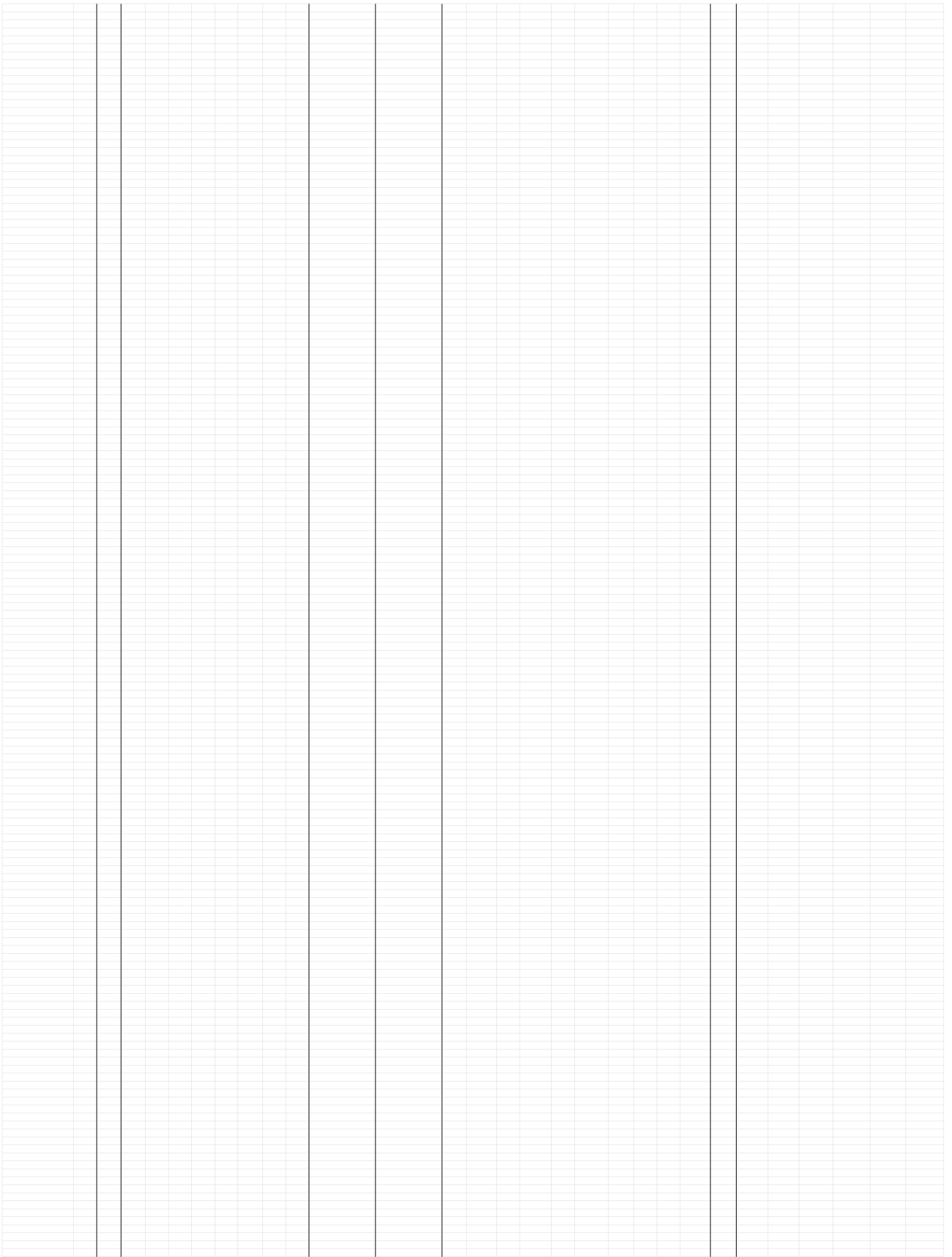
Expected NUW Total 0.0229847

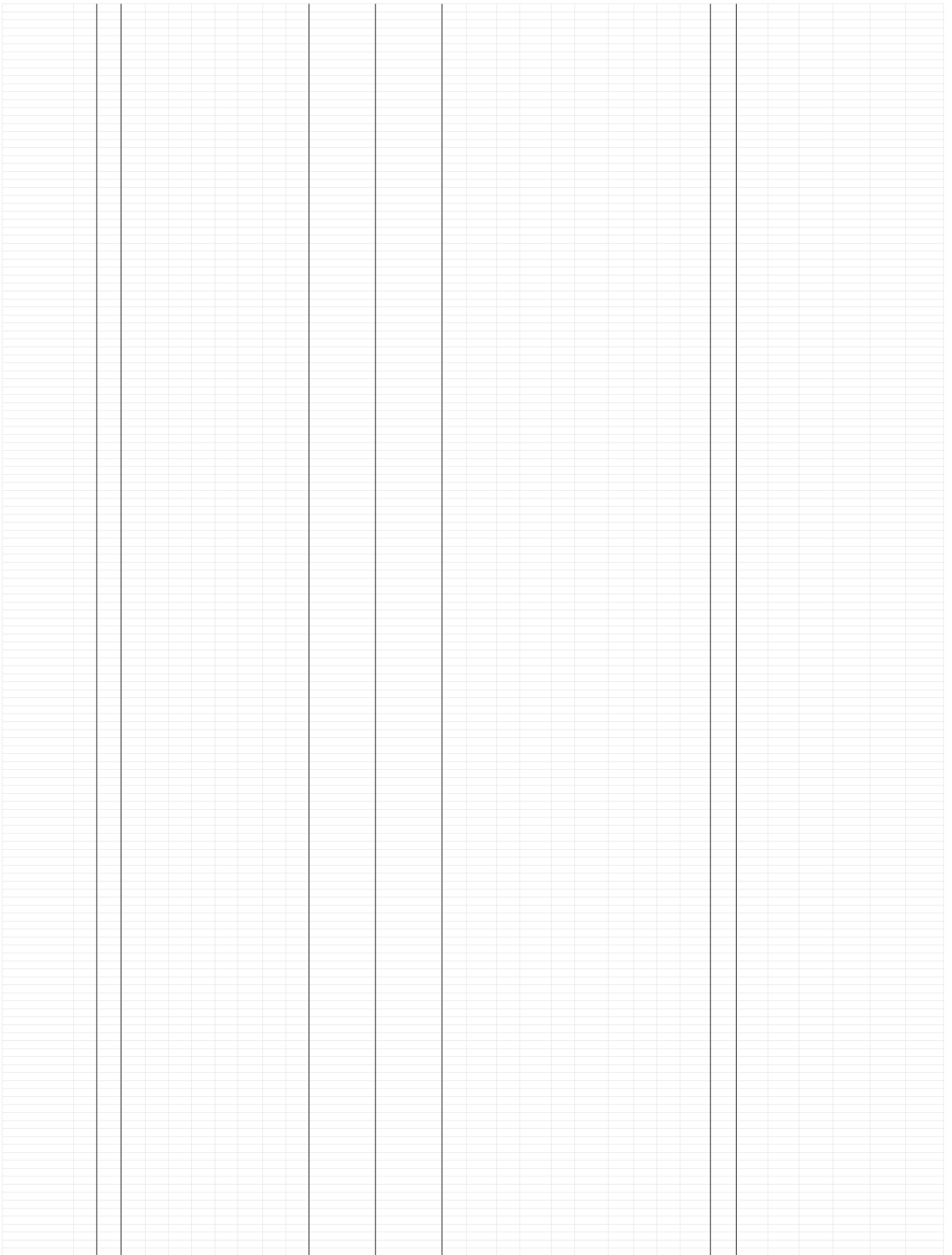
Gem Breakdown

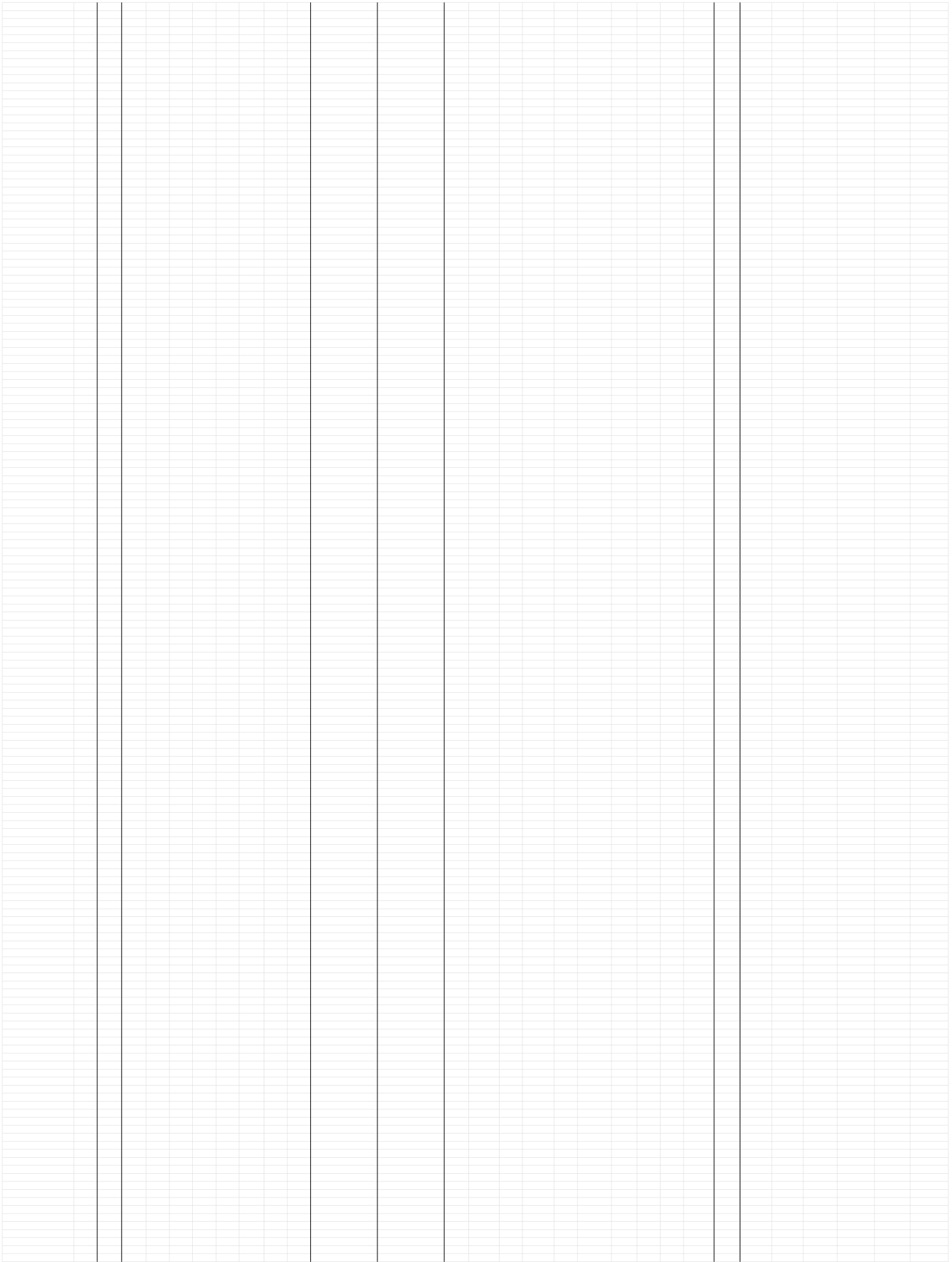
All Terrains		Fire	Air	Water	Earth	Astral	Nature	Death
		0.000	0.001	0.006	0.001	0.008	0.000	0.001

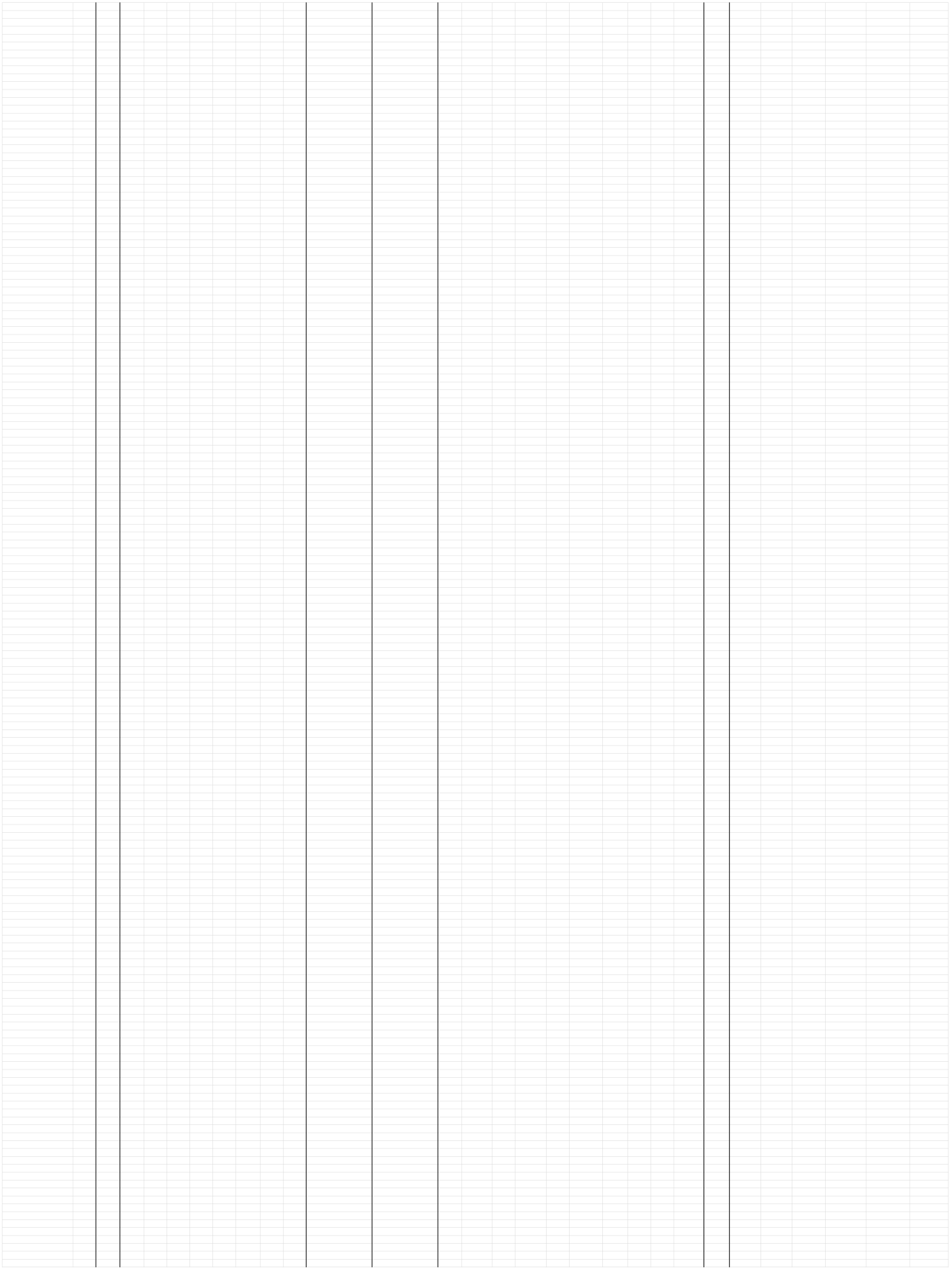


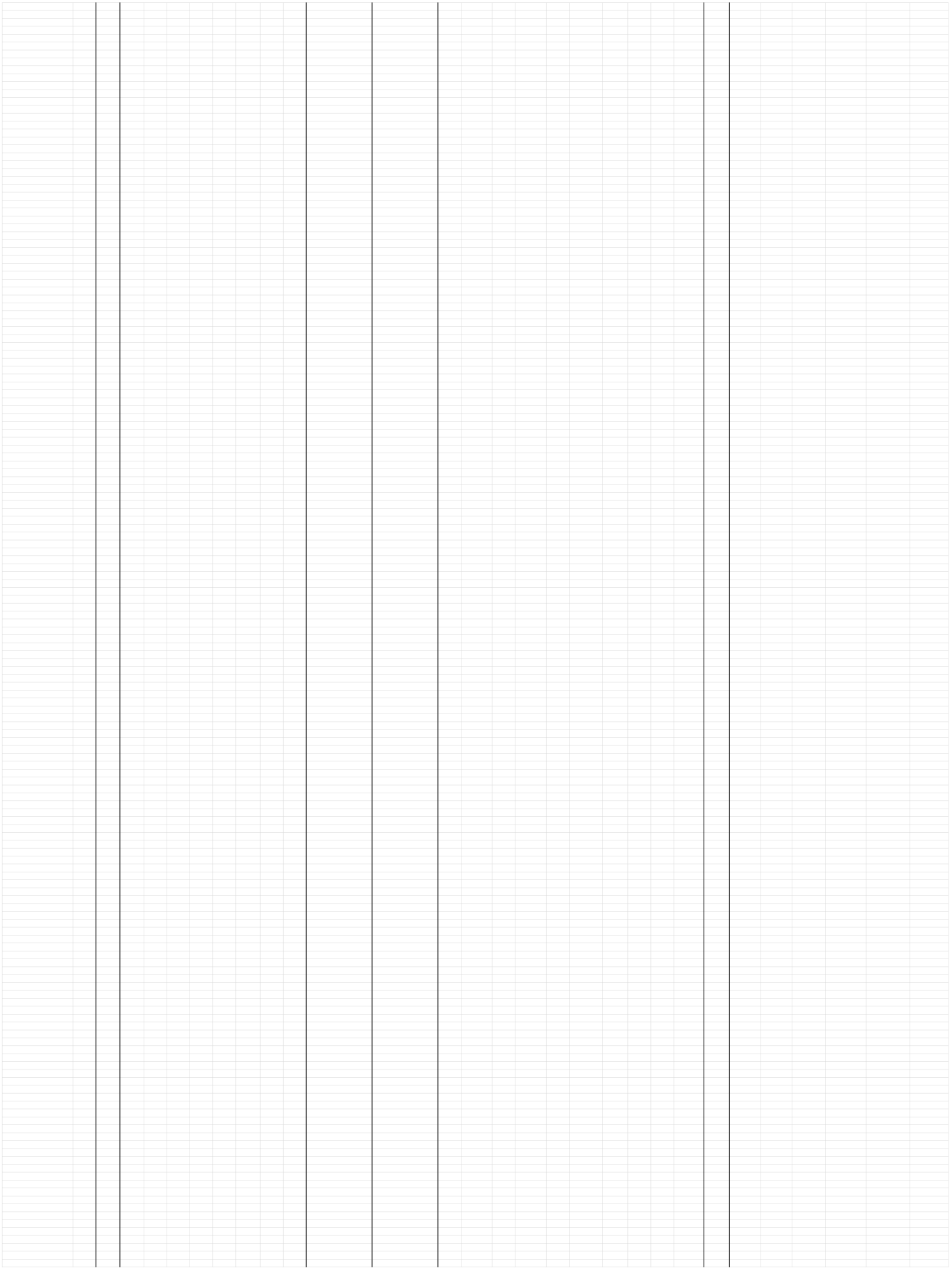


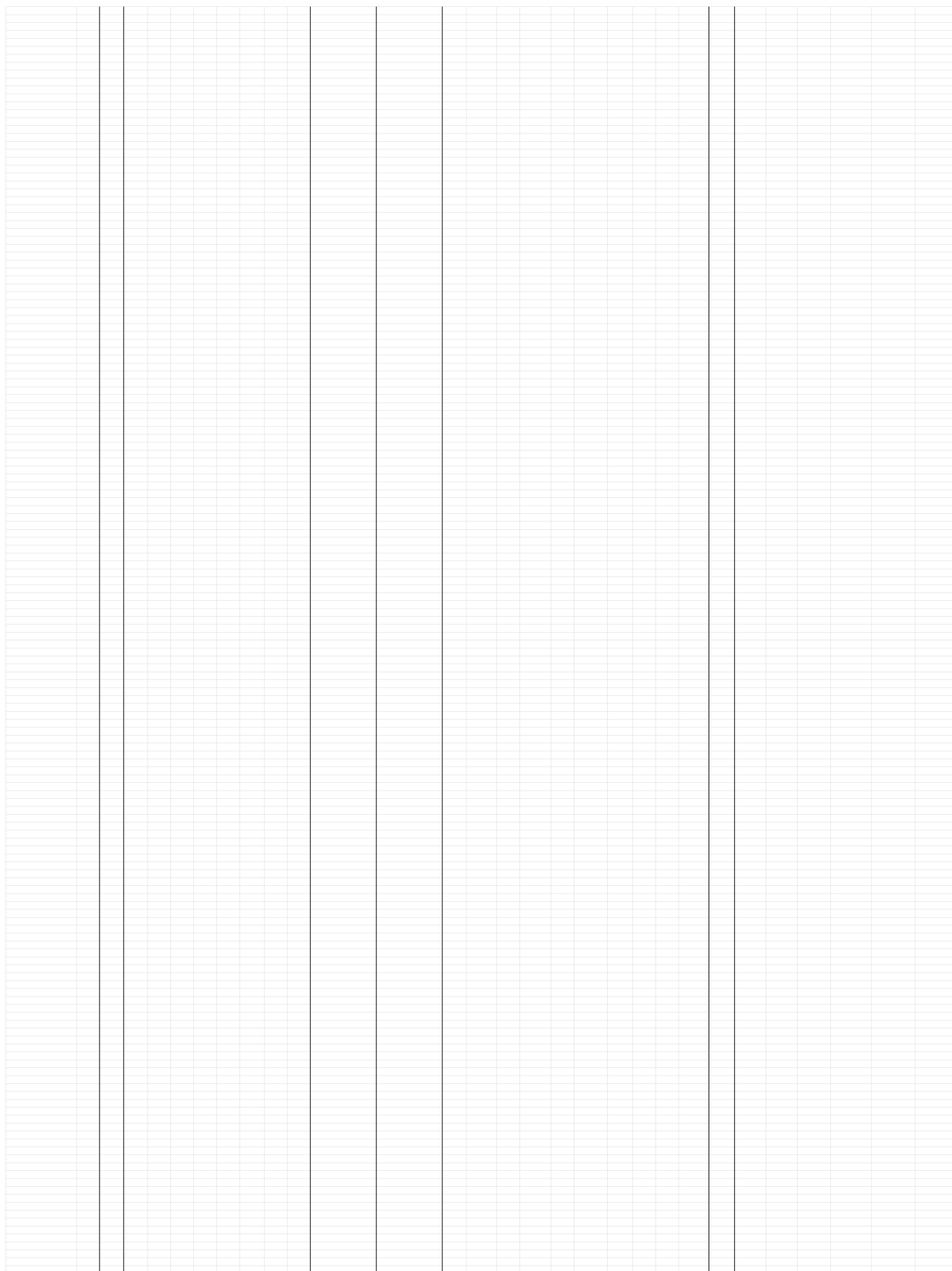


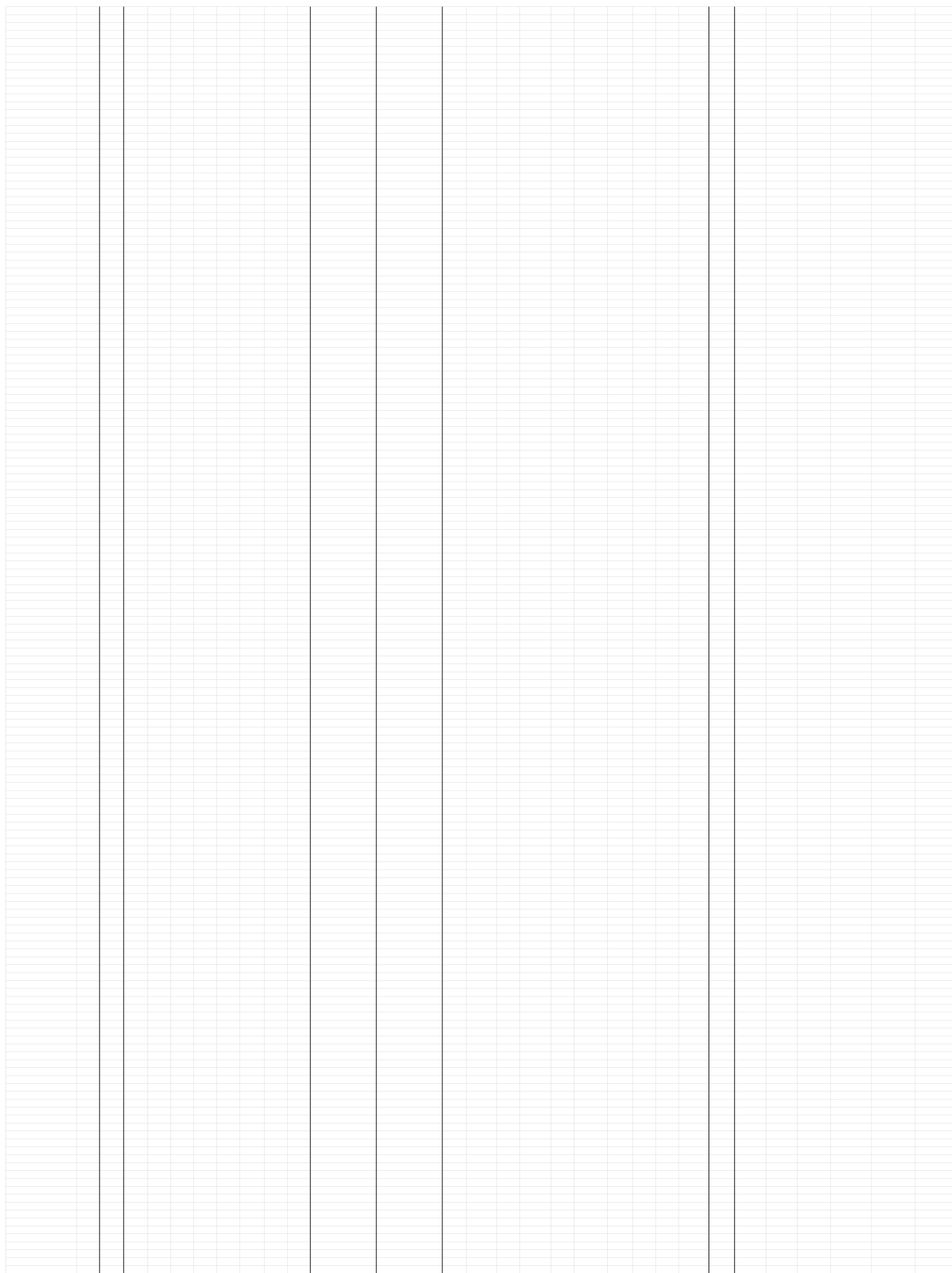


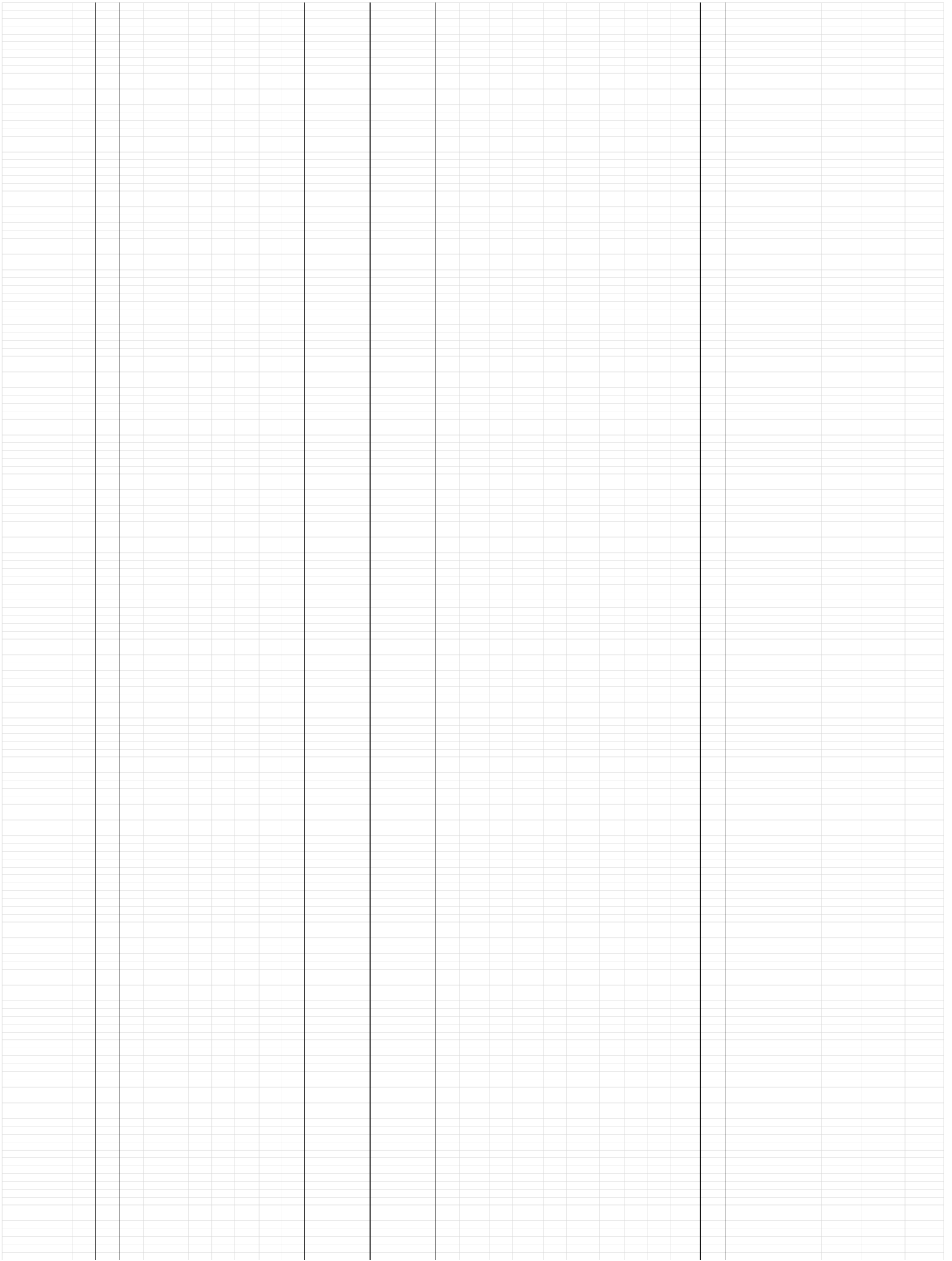












Name	Level	Rarity	Fire	Air	Water	Earth	Astral	Nature	Death	Total	Other	Plains	Farmland	Forest	Mountain	Cave	Wasteland	Swamp	Coast	Sea	Deep Sea	Unique	Incidence	Incidence	Incidence	Incidence	Incidence	Incidence	
Arena	0	0								0		1	1	1	1		1	1	1				0.75	0.75	0.75	0.75	0.75	0.75	
Academy of War	0	1								0		1	1	1	1		1	1	1				0.225	0.225	0.225	0.225	0.225	0.225	
Slave Market	0	1								0	3BS	1	1	1	1		1	1	1				0.225	0.225	0.225	0.225	0.225	0.225	
Brigand Lair	1	0								0		1	1	1	1		1	1	1				0.75	0	0.75	0.75	0.75	0.75	
Forgotten Village	1	0								0	1BS			1									0.75	0	0.75	0.75	0.75	0.75	
Bloodleaf Forest	1	1							1	1				1									0.225	0	0.225	0.225	0.225	0.225	
Bloodmarble Mausoleum	1	1								1		1	1	1	1	1	1	1	1				0.225	0	0.225	0.225	0.225	0.225	
Bloodsplatter Pattern	1	1						1		1		1	1	1	1	1	1	1	1				0.225	0	0.225	0.225	0.225	0.225	
Bloodstone Mountain	1	1					1			1		1	1	1	1	1	1	1	1				0.225	0	0.225	0.225	0.225	0.225	
Bloodsucker Fens	1	1			1					1								1					0.225	0	0.225	0.225	0.225	0.225	
Bloodwind Waste	1	1			1					1								1					0.225	0	0.225	0.225	0.225	0.225	
Cliffside Abattoir	1	1			1					1					1							1	0.225	0	0.225	0.225	0.225	0.225	
Damned Merchant	1	1			1					0	1BS	1	1	1	1		1	1	1				0.225	0	0.225	0.225	0.225	0.225	
Fields of Blood	1	1								1		1											0.225	0	0.225	0.225	0.225	0.225	
Gone Swamps	1	1						1		1									1				0.225	0	0.225	0.225	0.225	0.225	
Mount Chaining	1	1								0		1	1	1	1		1	1	1				0.225	0	0.225	0.225	0.225	0.225	
Sacrificial Grove	1	1								0		1	1	1									0.225	0	0.225	0.225	0.225	0.225	
The Blood Keep	1	1								0	1BS				1								0.225	0	0.225	0.225	0.225	0.225	
The First Gate	1	1								0		1	1	1	1	1	1	1	1				0.225	0	0.225	0.225	0.225	0.225	
The Vale of Infinite Horror	1	1								0		1	1	1	1		1	1	1				0.225	0	0.225	0.225	0.225	0.225	
Torture Tower	1	1								0		1											0.225	0	0.225	0.225	0.225	0.225	
Tower of the Devil's Bride	1	1								0		1	1	1	1		1	1	1				0.225	0	0.225	0.225	0.225	0.225	
Assassins Guild	1	2								0		1	1	1	1		1	1	1				0.025	0	0.025	0.025	0.025	0.025	
Bleeding Tree	1	2						1		1				1									0.025	0	0.025	0.025	0.025	0.025	
Blood Henge	1	2							1	1	Bloodhenge Druid	1	1	1	1		1	1	1				0.025	0	0.025	0.025	0.025	0.025	
Nest of Bats	1	2								1						1							0.025	0	0.025	0.025	0.025	0.025	
Red Forest	1	2		1					1	2				1									0.025	0	0.025	0.025	0.025	0.025	
Stained Altar	1	2								0		1	1	1	1		1	1	1				0.025	0	0.025	0.025	0.025	0.025	
The Lesser Abyss	1	2								0						1							0.025	0	0.025	0.025	0.025	0.025	
Devil's Den	2	1								0		1	1	1	1		1	1	1				0.225	0	0	0.225	0.225	0.225	
Pentagram	2	1								0		1	1	1	1		1	1	1				0.225	0	0	0.225	0.225	0.225	
The Second Gate	2	1								0		1	1	1	1	1	1	1	1				0.225	0	0	0.225	0.225	0.225	
Bloodshade Glen	2	2						1		1				1				1					0.025	0	0	0.025	0.025	0.025	
Bloodstone Mirror	2	2								0		1	1	1	1		1	1	1				0.025	0	0	0.025	0.025	0.025	
Ebony Tower	2	2						1		3	4			1	1	1		1	1	1			0.025	0	0	0.025	0.025	0.025	
Forest of Pain	2	2							1	1				1									0.025	0	0	0.025	0.025	0.025	
Haunted Torture Chamber	2	2							1	1		1	1	1	1	1	1	1	1				0.025	0	0	0.025	0.025	0.025	
House of Disfigurement	2	2								0		1	1	1	1		1	1	1				0.025	0	0	0.025	0.025	0.025	
Pool of Unhealthy Rites	2	2				1				2		1	1	1	1	1	1	1	1				0.025	0	0	0.025	0.025	0.025	
Splattermaid Gorge	2	2			1					1						1							0.025	0	0	0.025	0.025	0.025	
The Ebony Circle	2	2			1					3	4	1	1	1	1		1	1	1				0.025	0	0	0.025	0.025	0.025	
The Lodge	2	2								0	1BS	1	1	1	1		1	1	1				0.025	0	0	0.025	0.025	0.025	
The Mountain of Power	2	2								0	3BS							1					0.025	0	0	0.025	0.025	0.025	
The Slaughterhouse	2	2								0		1	1	1	1		1	1	1				0.025	0	0	0.025	0.025	0.025	
Tower of the Deformer	2	2								0		1	1	1	1		1	1	1				0.025	0	0	0.025	0.025	0.025	
The Demon Gate	3	1								0		1	1	1	1		1	1	1				0.225	0	0	0	0.225	0.225	
The Prison of Hearts	3	1								0		1	1	1	1		1	1	1				0.225	0	0	0	0.225	0.225	
The Summoning Circle	3	2								0		1	1	1	1	1	1	1	1				0.025	0	0	0	0.025	0.025	
The Blood Rock	3	2								0					1								0.025	0	0	0	0.025	0.025	
Hall of Flayed Skins	4	2								0		1	1	1	1		1	1	1				0.025	0	0	0	0	0.025	
The Third Gate	4	2								0		1	1	1	1	1	1	1	1				0.025	0	0	0	0	0.025	
Total																								8.25		6.7	7.7	8.2	8.25

Name	Level	Rarity	Fire	Air	Water	Earth	Astral	Nature	Death	Total	Other	Plains	Farmland	Forest	Mountain	Cave	Wasteland	Swamp	Coast	Sea	Deep Sea	Unique	Incidence	Incidence	Incidence	Incidence	Incidence	Incidence	
Monastery of Light	0	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0.025	0.025	0.025	0.025	0.025
Ancient Temple	1	0						1		1		1	1	1	1	1	1	1	1	1	1			0.75	0	0.75	0.75	0.75	0.75
Ancient Temple of the Deeps	1	0			1			1		2												1	1	0.75	0	0.75	0.75	0.75	0.75
Convent	1	1								0		1	1	1	1	1	1	1	1	1	1			0.225	0	0.225	0.225	0.225	0.225
Shrine of the Outcast	1	1								0		1	1	1	1	1	1	1	1	1	1			0.225	0	0.225	0.225	0.225	0.225
Abbey	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Cradle of Faith	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Mountain of Revelation	1	2								0					1							1		0.025	0	0.025	0.025	0.025	0.025
Oracle's Lair	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Order of the Secret Light	1	2						1		1	Sage	1	1	1	1	1	1	1	1	1	1		1	0.025	0	0.025	0.025	0.025	0.025
Order of the Undying	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Pillar of Life	1	2								0		1	1	1	1	1	1	1	1	1	1		1	0.025	0	0.025	0.025	0.025	0.025
Place of Prophecy	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Stele of Law	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Temple of Flying Monkeys	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Temple of Life and Death	1	2							1	1		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Temple of the Spider	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
The Martyr's Grave	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
The Prophet's Sigil	1	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0.025	0.025	0.025	0.025
Pool of Sanctity	2	1			1					1		1	1	1	1	1	1	1	1	1	1			0.225	0	0	0.225	0.225	0.225
The Marble Temple	2	1								0		1	1	1	1	1	1	1	1	1	1		1	0.225	0	0	0.225	0.225	0.225
Garden of Longevity	2	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0	0.025	0.025	0.025
Temple of Hidden Flame	2	2	1							1		1	1	1	1	1	1	1	1	1	1			0.025	0	0	0.025	0.025	0.025
Hidden Monastery	3	1								0		1	1	1	1	1	1	1	1	1	1			0.225	0	0	0	0.225	0.225
The Empty Grave	3	1							1	1		1	1	1	1	1	1	1	1	1	1		1	0.225	0	0	0	0.225	0.225
The Forgotten Crypt	3	1		1	1	1				3		1	1	1	1	1	1	1	1	1	1			0.225	0	0	0	0.225	0.225
The Records of Mankind	3	2								0	Lore Master, All graphs	1	1	1	1	1	1	1	1	1	1		1	0.025	0	0	0	0.025	0.025
Temple of Time	4	2						2		2		1	1	1	1	1	1	1	1	1	1			0.025	0	0	0	0	0.025
The Ward	4	2								0		1	1	1	1	1	1	1	1	1	1			0.025	0	0	0	0	0.025
Total																								3.575		2.325	2.825	3.525	3.575

		0.5							
				Expected					
1.08	-0.2			0.4109589					
1.67	0			0.9090909					
2.15	0.1			1.3043478					
2.35	0.2			1.8918918					
2.8	0.3			2.8571428					
225		Plains	Swamps	Wastes	Caves	Farms	Forests	Mountains	
Land	202	88	11	9	12	29	43	12	
		44%	5%	4%	6%	14%	21%	6%	
Land	182	84	13	10	12	22	33	10	
		46%	7%	5%	7%	12%	18%	5%	
		45%	6%	5%	6%	13%	20%	6%	