

## MSC2003Y Assignment 2 Design Comprehensive: Data Visualization

### Topic: Feeder birds in Michigan

#### Description:

Getting started in birdwatching is exciting yet also overwhelming. This poster is meant to familiarize the lay viewer with the species they can expect to see visiting their bird feeders. Topics will include the most common feeder birds in Michigan, the most populous species, a timeline of when colorful summer birds can be expected, and what foods can attract different birds.

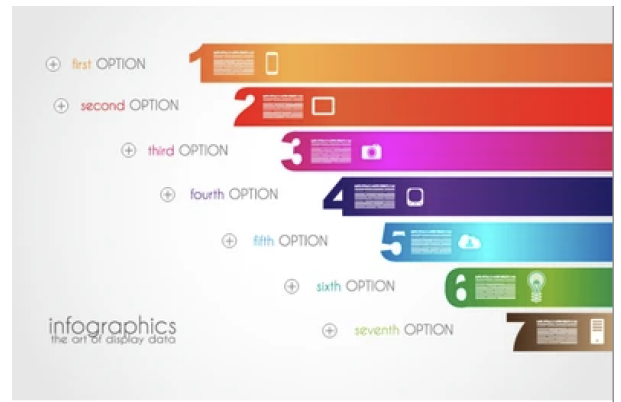
The poster will be light, friendly, and approachable. It will feature graphics of each species discussed to allow the viewer to recognize the birds. The purpose of this project is to educate the viewer on neighborhood birds and foster an appreciation for the great variety of species right in their backyard.

**Audience:** general public new to birdwatching

**Asset 1:** Bar graph on most common feeder birds in Michigan

**Data set:** [https://feederwatch.org/pfw/top25/PFW\\_2022/US-MI](https://feederwatch.org/pfw/top25/PFW_2022/US-MI)

1. Black-capped chickadee: 97% of sites visited
2. Blue jay: 95%
3. Mourning dove: 95%
4. Downy woodpecker: 94%
5. Dark-eyed junco: 94%
6. American goldfinch: 92%
7. Northern cardinal: 90%
8. White-breasted nuthatch: 89%
9. Red-bellied woodpecker: 88%
10. House finch: 79%



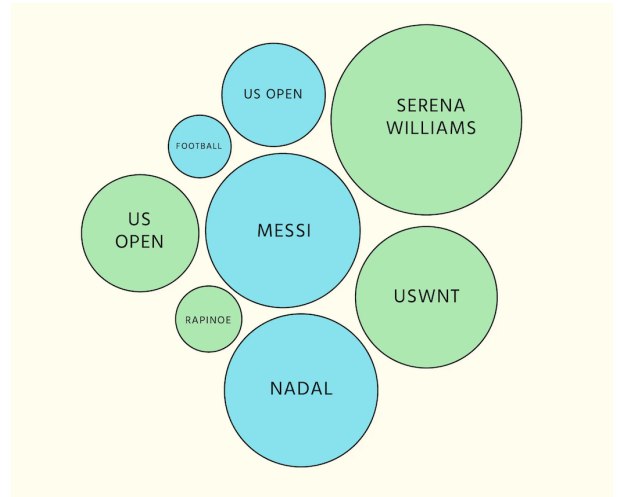
The percentage of sites visited will be encoded by the length of the horizontal bar. The percentage will also be listed directly on the bar. Portraits of each species will be adjacent to the bar. Perhaps the chickadee will be wearing a little crown, because that would be cute.

**Asset 2:** Bubble chart of the most populous species in Michigan

**Data set:** <https://pif.birdconservancy.org/population-estimate-database-scores/>

1. American robin: 7,500,000
2. Chipping sparrow: 6,800,000
3. Song sparrow: 4,500,000
4. Red-eyed vireo: 3,800,000
5. Cedar waxwing: 3,400,000

I thought adding this information would be interesting for the viewer to recognize that not every bird regularly visits feeders, therefore population data cannot be inferred by which species you see the most. Population size will be encoded by the size of the bubble. Each bubble will feature a portrait of the species and list the population number.



	A	B	C	D	E	F	G	H	I	J
1	AOS 60	Common Na	Scientific Na	Introduced	Province/Sta	Country	Population E	Lower 95% b	Upper 95% b	Data Source
2	200	Mourning Do	Zenaida macroura		MI	USA	2300000	1600000	3200000	bbs
3	334	Ruby-throate	Archilochus colubris		MI	USA	1500000	710000	2600000	bbs
4	1364	Red-eyed Vir	Vireo olivaceus		MI	USA	3800000	2600000	5100000	bbs
5	1440	Black-capped	Poecile atricapillus		MI	USA	2200000	1700000	2900000	bbs
6	1465	House Wren	Troglodytes aedon		MI	USA	1000000	750000	1300000	bbs
7	1613	American Ro	Turdus migratorius		MI	USA	7500000	5200000	10000000	bbs
8	1624	Gray Catbird	Dumetella carolinensis		MI	USA	1100000	780000	1500000	bbs
9	1645	European Sta	Sturnus vulgaris		MI	USA	3200000	2000000	4900000	bbs
10	1648	Cedar Waxw	Bombycilla cedrorum		MI	USA	3400000	2600000	4400000	bbs
11	1678	House Sparro	Passer domesticus		MI	USA	2100000	1400000	2800000	bbs
12	1782	American Gc	Spinus tristis		MI	USA	1700000	1300000	2300000	bbs
13	1822	Chipping Spa	Spizella passerina		MI	USA	6800000	5300000	8700000	bbs
14	1856	Savannah Sp	Passerculus sandwichensis		MI	USA	1400000	860000	2300000	bbs
15	1858	Song Sparrow	Melospiza melodia		MI	USA	4500000	3500000	5600000	bbs
16	1937	Red-winged	Agelaius phoeniceus		MI	USA	3200000	2100000	4600000	bbs
17	1944	Brown-head	Molothrus ater		MI	USA	1200000	900000	1600000	bbs
18	1950	Common Gra	Quiscalus quiscula		MI	USA	1500000	970000	2300000	bbs
19	1958	Ovenbird	Seiurus aurocapilla		MI	USA	1200000	750000	1900000	bbs
20	1987	Common Yel	Geothlypis trichas		MI	USA	1700000	1300000	2200000	bbs
21	1994	American Re	Setophaga ruticilla		MI	USA	1100000	700000	1600000	bbs
22	2058	Northern Car	Cardinalis cardinalis		MI	USA	1700000	1100000	2400000	bbs
23	2071	Indigo Buntir	Passerina cyanea		MI	USA	2100000	1600000	2700000	bbs

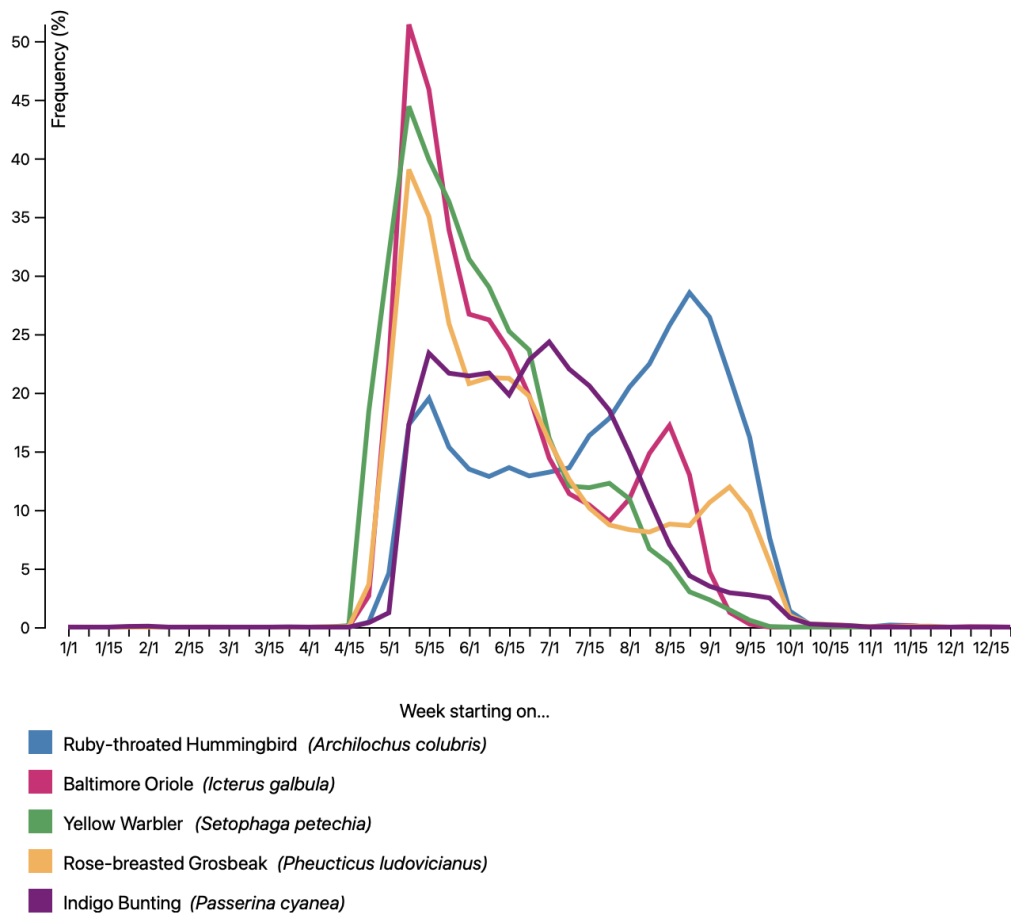
Sophia Huebel

**Asset 3:** Line graph of the timeline of various colorful summer visitors in Michigan

**Data set:**

<https://ebird.org/barchart?byr=2022&eyr=2023&bmo=1&emo=12&r=US-MI&spp=rthhum,yelwar,robgro,balori,indbun>

<https://docs.google.com/spreadsheets/d/1e0t4IH-6mOvR-1hM9LSiJmzqxrXuzTg4yI9UCgYBMYc/edit?usp=sharing>



This line graph will compare the timeline of different summer visitors to Michigan, including the ruby-throated hummingbird, baltimore oriole, yellow warbler, rose-breasted grosbeak (my favorite), and the indigo bunting. Time will be encoded by the month on the X axis, while the frequency of observations will be encoded on the Y axis. Species will be encoded by color.

**Asset 4:** “Bullseye” chart or venn diagram of food preferences for different species

Data:

Table 1. Continued

Candidate food	Species																	
	AG <sup>a</sup>	BJ	BHC	CA	CC	DEJ	EG	HF	HS	MD	PF	RBW	SS	ST	TS	TT	WCS	WTS
<b>Sunflower seeds</b>																		
Black striped (BSS)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Gray striped	0.17	0.75	0.61	0.67	0.22	0.70	1.10	0.31	0.55	0.46	0.64	—	—	—	—	0.75	—	0.54
	<i>86</i>	<i>439</i>	<i>85</i>	<i>2829</i>	<i>73</i>	<i>140</i>	<i>184</i>	<i>229</i>	<i>1307</i>	<i>777</i>	<i>39</i>	—	—	—	—	<i>44</i>	—	<i>642</i>
Hulled pieces and kernels	20.38	0.02	1.91	0.37	0.56	—	—	1.88	2.43	1.84	—	—	—	—	—	0.00	—	2.17
	<i>71</i>	<i>232</i>	<i>103</i>	<i>2476</i>	<i>72</i>	—	—	<i>41</i>	<i>1103</i>	<i>753</i>	—	—	—	—	—	<i>25</i>	—	<i>116</i>
Oil-type	4.06	0.19	1.03	1.14	3.53	2.99	1.48	2.26	1.27	4.49	4.05	0.13	3.22	—	—	0.53	1.61	1.67
	<i>1797</i>	<i>1692</i>	<i>643</i>	<i>7000</i>	<i>350</i>	<i>160</i>	<i>969</i>	<i>2913</i>	<i>4340</i>	<i>1426</i>	<i>172</i>	<i>30</i>	<i>23</i>	—	—	<i>536</i>	<i>23</i>	<i>1623</i>
<b>Wheat</b>																		
New	—	0.00	4.22	0.11	—	—	0.00	—	1.72	2.28	—	—	—	—	—	—	—	—
	—	<i>26</i>	<i>23</i>	<i>257</i>	—	—	<i>93</i>	—	<i>403</i>	<i>57</i>	—	—	—	—	—	—	—	—
Old	0.00	0.08	1.41	0.07	0.05	—	0.00	0.03	1.20	1.25	—	—	—	—	—	—	—	0.12
	<i>60</i>	<i>139</i>	<i>107</i>	<i>1470</i>	<i>37</i>	—	—	<i>36</i>	<i>1770</i>	<i>209</i>	—	—	—	—	—	—	—	<i>83</i>
<b>Thistle</b>	6.28	T	0.55	0.02	0.02	1.55	0.02	0.20	0.12	2.67	0.25	0.00	2.25	—	—	0.00	0.09	0.26
	<i>851</i>	<i>934</i>	<i>51</i>	<i>4648</i>	<i>236</i>	<i>328</i>	<i>227</i>	<i>213</i>	<i>1161</i>	<i>270</i>	<i>194</i>	<i>43</i>	<i>12</i>	—	—	<i>161</i>	<i>46</i>	<i>2320</i>

<sup>a</sup>AG—American goldfinch; BJ—Blue jay; BHC—Brown-headed cowbird; CA—Cardinal; CC—Carolina chickadee; DEJ—Dark-eyed junco; EE—Evening grosbeak; HF—House finch; HS—House sparrow; MD—Mourning dove; PF—Purple finch; RBW—Red-bellied woodpecker; SS—Song sparrow; ST—Starling; TS—Tree sparrow; TT—Tufted titmouse; WCS—White-crested sparrow; WTS—White-throated sparrow.  
<sup>b</sup>Less than 0.01.

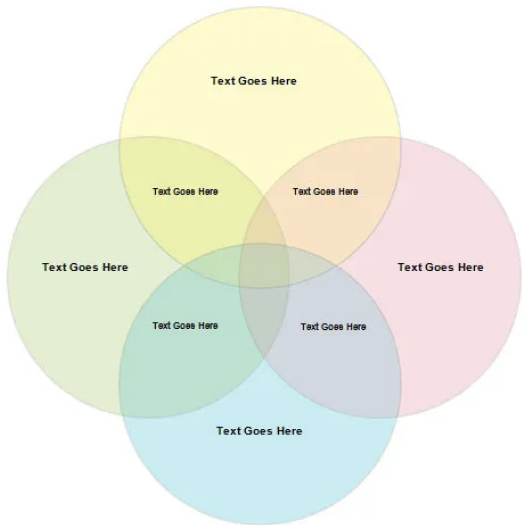
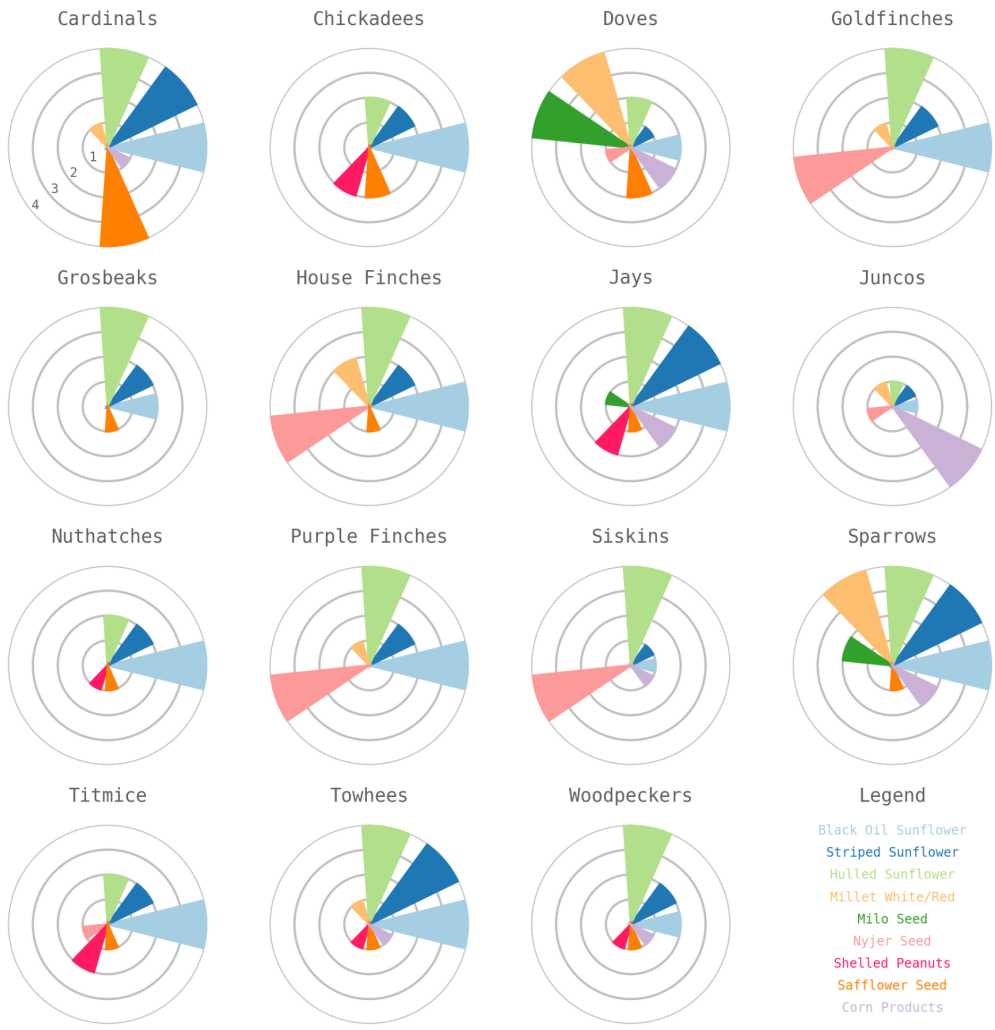
Table 1. Attractiveness of various foods compared with that of black striped sunflower (BSS), for different species of birds: number of visits to candidate food per visit to BSS and (in italics) number of visits to BSS while it and candidate food were equally available.

Candidate food	Species																	
	AG <sup>a</sup>	BJ	BHC	CA	CC	DEJ	EG	HF	HS	MD	PF	RBW	SS	ST	TS	TT	WCS	WTS
<b>Buckwheat</b>	—	—	1.76	0.01	—	—	—	—	0.46	1.74	—	—	—	—	—	—	—	—
	—	—	<i>17</i>	<i>101</i>	—	—	—	—	<i>119</i>	<i>38</i>	—	—	—	—	—	—	—	—
<b>Canary seed</b>	0.02	T <sup>b</sup>	1.05	T	0.02	4.62	0.00	0.01	1.50	1.51	0.08	0.00	—	—	1.40	0.00	0.07	0.65
	<i>1944</i>	<i>369</i>	<i>111</i>	<i>2325</i>	<i>133</i>	<i>73</i>	<i>104</i>	<i>173</i>	<i>360</i>	<i>245</i>	<i>162</i>	<i>54</i>	—	—	<i>25</i>	<i>72</i>	<i>121</i>	<i>1186</i>
<b>Cracked corn</b>																		
Fine	—	—	—	0.06	0.00	4.62	—	—	—	—	—	—	—	—	30.00	—	—	0.55
	—	—	—	<i>227</i>	<i>37</i>	<i>13</i>	—	—	—	—	—	—	—	—	<i>1</i>	—	—	<i>100</i>
Coarse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Flax</b>	—	0.00	—	0.00	—	—	0.00	—	0.00	0.11	—	—	—	—	—	—	—	0.00
	—	<i>81</i>	—	<i>198</i>	—	—	<i>104</i>	—	<i>54</i>	<i>35</i>	—	—	—	—	—	—	—	<i>152</i>
<b>Millets</b>																		
German	—	0.00	5.59	0.06	—	—	—	—	2.72	0.31	—	—	—	—	—	—	—	—
	—	<i>23</i>	<i>27</i>	<i>51</i>	—	—	—	—	<i>99</i>	<i>32</i>	—	—	—	—	—	—	—	—
White proso (WPM)	0.05	0.04	7.61	0.20	0.02	5.54	0.02	0.06	4.81	4.24	0.18	0.02	8.75	6.80	30.33	0.02	1.01	1.28
	<i>1928</i>	<i>1016</i>	<i>707</i>	<i>7924</i>	<i>412</i>	<i>277</i>	<i>388</i>	<i>332</i>	<i>3778</i>	<i>862</i>	<i>173</i>	<i>99</i>	<i>16</i>	<i>15</i>	<i>24</i>	<i>163</i>	<i>167</i>	<i>3193</i>
Red proso	0.03	0.01	6.89	0.14	T	7.17	0.00	0.25	3.49	3.72	0.20	0.00	4.17	0.41	36.50	0.01	0.75	0.97
	<i>2658</i>	<i>586</i>	<i>153</i>	<i>4679</i>	<i>258</i>	<i>162</i>	<i>74</i>	<i>48</i>	<i>681</i>	<i>259</i>	<i>127</i>	<i>102</i>	<i>6</i>	<i>22</i>	<i>28</i>	<i>159</i>	<i>139</i>	<i>2718</i>
Japanese	—	—	—	0.00	0.00	0.38	—	—	—	—	—	—	—	—	—	—	—	0.04
	—	—	—	<i>112</i>	<i>30</i>	<i>24</i>	—	—	—	—	—	—	—	—	—	—	—	<i>86</i>
<b>Milo</b>	T	0.12	1.86	0.12	0.04	0.87	0.01	0.00	0.96	2.07	—	—	—	7.40	—	0.00	—	0.33
	<i>602</i>	<i>128</i>	<i>49</i>	<i>660</i>	<i>100</i>	<i>39</i>	<i>93</i>	<i>126</i>	<i>334</i>	<i>42</i>	—	—	—	<i>5</i>	—	<i>24</i>	—	<i>209</i>
<b>Oats</b>																		
Hulled	0.00	—	0.84	0.01	—	0.31	—	0.00	0.81	1.04	—	—	—	67.00	—	—	—	0.20
	<i>193</i>	—	<i>237</i>	<i>595</i>	—	<i>52</i>	—	—	<i>26</i>	<i>364</i>	<i>97</i>	—	—	<i>1</i>	—	—	—	<i>327</i>
Whole	0.00	—	—	0.00	—	0.20	—	—	—	—	—	—	—	4.40	—	—	—	0.12
	<i>468</i>	—	—	<i>228</i>	—	<i>30</i>	—	—	—	—	—	—	—	<i>5</i>	—	—	—	<i>136</i>
<b>Peanuts</b>																		
Hearts	0.02	0.06	0.19	0.04	0.17	0.67	0.00	T	0.08	0.14	0.00	—	—	94.20	—	—	0.14	0.32
	<i>1634</i>	<i>123</i>	<i>111</i>	<i>1049</i>	<i>24</i>	<i>57</i>	<i>92</i>	<i>230</i>	<i>388</i>	<i>244</i>	<i>122</i>	—	—	<i>5</i>	—	—	<i>35</i>	<i>469</i>
Kernels	0.00	1.46	0.14	0.07	0.37	—	0.04	0.00	0.27	0.04	—	—	—	—	—	5.40	—	1.25
	<i>22</i>	<i>385</i>	<i>108</i>	<i>1517</i>	<i>95</i>	—	<i>24</i>	<i>115</i>	<i>1875</i>	<i>198</i>	—	—	—	—	—	<i>10</i>	—	<i>59</i>
<b>Rape seed</b>	0.00	0.00	—	0.00	—	—	0.00	0.00	0.00	—	0.00	—	—	—	—	—	—	0.00
	<i>51</i>	<i>163</i>	—	<i>219</i>	—	—	<i>161</i>	<i>61</i>	<i>36</i>	—	<i>30</i>	—	—	—	—	—	—	<i>80</i>
<b>Rice</b>	0.01	0.10	0.38	T	0.00	0.21	—	—	0.10	0.64	—	—	—	—	—	0.00	—	0.02
	<i>304</i>	<i>29</i>	<i>53</i>	<i>975</i>	<i>30</i>	<i>101</i>	—	—	<i>143</i>	<i>47</i>	—	—	—	—	—	<i>34</i>	—	<i>763</i>

# Seed Preferences of Birds Near Chagrin Falls, Ohio

High=4, Med=2, Low=1

Data: DataIsBeautiful Contest July 2018  
Code: [www.github.com/aaronpenne](http://www.github.com/aaronpenne)  
@aaronpenne © 2018



This section will go over food preferences for different species, with the aim of educating viewers on how to attract the birds they want to their feeders. I plan on either doing a bullseye chart with the data in the table, or taking a broader approach and separating them into categories with a venn diagram.

**Style inspiration:**

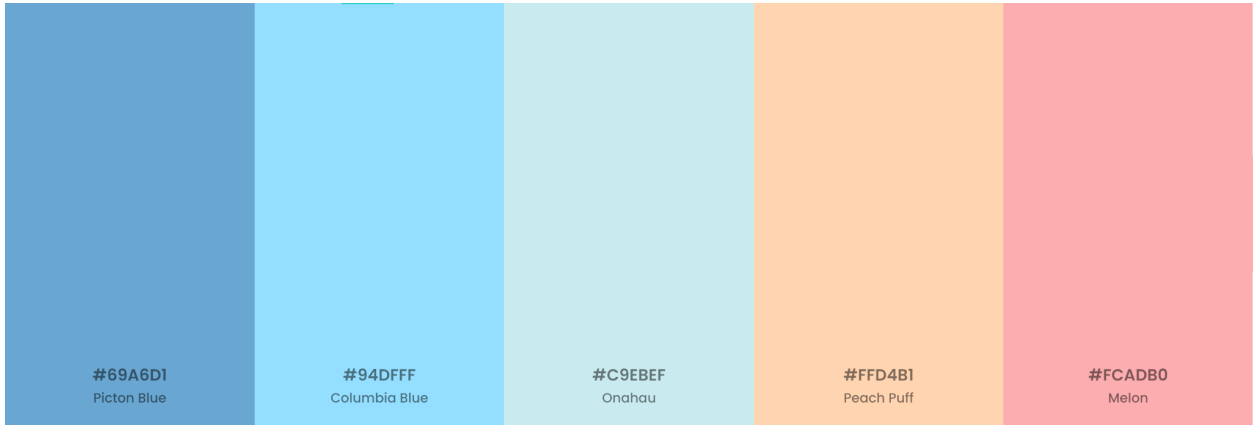
NEW

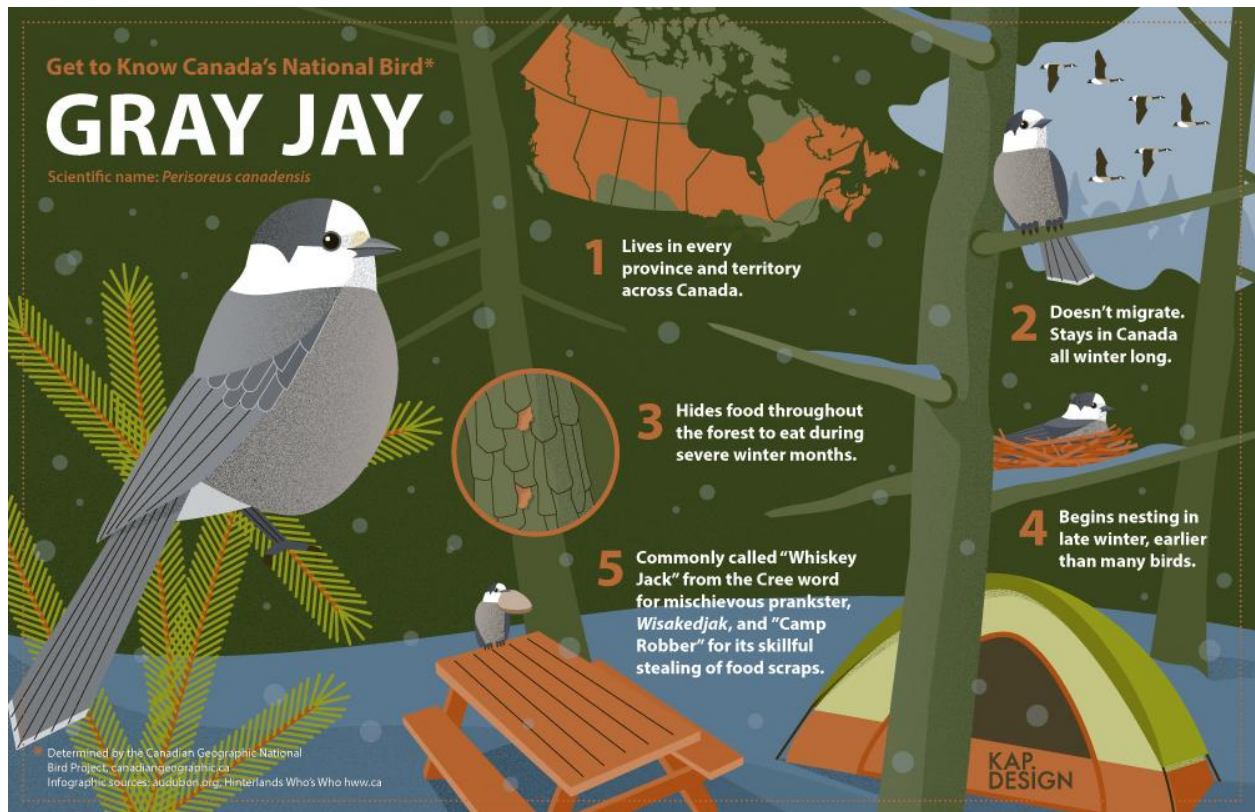
# PETS COLLECTION

amy BIRDS



alamy Image ID: W3PN0J  
www.alamy.com





**Robins:** fruits/berries, insects

**Blue jays:** peanuts, sunflower seeds, safflower

**Cardinal:** sunflower seeds, safflower

**Chickadee:** sunflower seeds, peanuts, mealworms, suet

**White-breasted nuthatch:** sunflower seeds, peanuts, suet

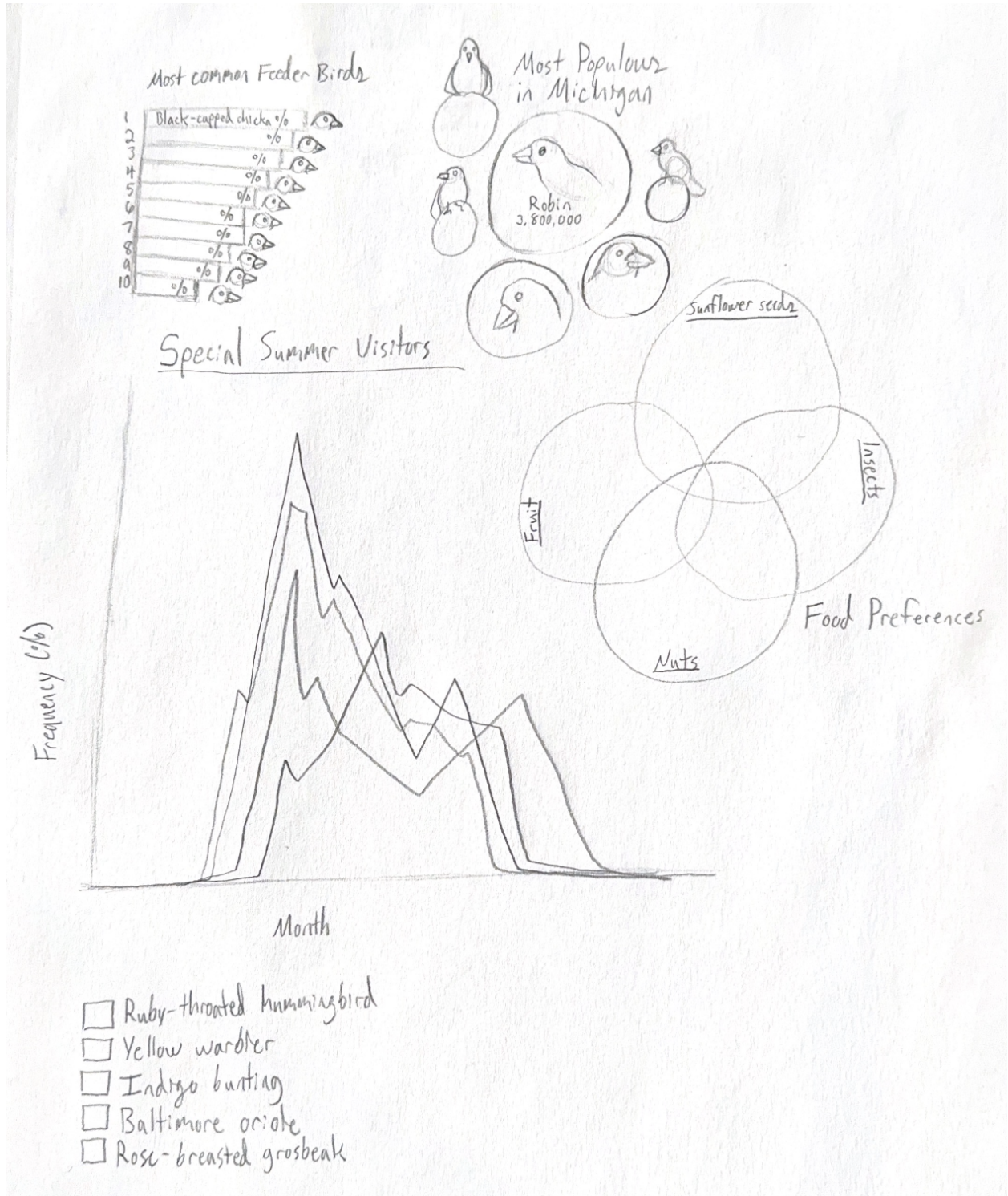
**Downy woodpecker:** sunflower seeds, peanuts, suet, mealworms

**Rose-breasted grosbeak:** sunflower seeds, safflower, suet

**Indigo bunting:** fruit, peanuts, nyjer seed

**Baltimore oriole:** fruit, insects

**American goldfinch:** nyjer seed





**References:**

*113th CBC Michigan Regional Summary*. Audubon. (2022, December 22). Retrieved March 23, 2023, from <https://www.audubon.org/content/113th-cbc-michigan-regional-summary>

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