|  |  |  |
| --- | --- | --- |
|  | **Isotopes: Find the Message** | |
| **Date:** | **Name:** |

In the chart below, record the missing values and isotopes using a Periodic Table. Then, find the shape with the corresponding missing value or isotope and shade it in.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Isotope** | **Standard Notation** | **Atomic Mass** | **Atomic Number** | **Number of Protons** | **Number of Neutrons** | **Number of Electrons** |
| **H-2** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  | **37** | **17** |  |  |  |
|  |  |  |  | **28** | **30** |  |
|  |  |  |  |  | **32** | **28** |
|  |  |  |  | **29** | **36** |  |
| **Se-78** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  | **79** |  |  | **44** |  |
|  |  | **81** |  |  | **46** |  |
| **U-235** |  |  |  |  |  |  |
|  |  | **204** |  |  | **122** |  |
|  |  | **204** |  |  | **124** |  |
|  |  |  |  | **76** | **114** |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **82** | **C-14** | | | |  | **24** |  | **Os-114** | | | **3** | **Ge-72** | | | **39** | **Ti-46** | | | **Sn-114** | | **75** | **Eu-152** | | |  | **Ni-60** | | **Os-190** | |
|  | **6** |  | **60** |  |  |  |  |  | **12** |  | **U-238** | |  | **88** | **Zn-68** | | | **91** |  |  |  |  |  | **67** |  |  | **In-115** | | **76** |
|  |  | **15** |  | **H-1** |  |  |  | **186** |  |  | **Ne-20** | |  |  |  | **97** | **Nd-146** | |  |  |  | **45** | **Xe-134** | | **Hg-200** | | | **2** |  |
| **235** | | **38** |  |  | **Dy-162** | | | **208** |  | **11** | **Br-80** | | | **27** |  |  | **205** | **99** |  |  | **Se-80** | |  | **10** | **S-34** | | **34** | **98** |  |
|  | **Cl-37** | | **1** |  |  | **72** | **Br-81** | | | **92** |  | **Cu-65** | |  |  |  | **17** |  |  | **80** | **14** |  |  |  |  |  |  | **143** | |
|  |  |  |  | **100** |  |  | **41** | **77** | | **33** | |  | **Hg-204** | |  |  | **36** |  |  |  |  | **Kr-86** | |  |  |  | **21** | **73** |  |
|  |  | **93** | **Kr-82** | | | **94** | **Ni-58** | | **86** |  | **4** |  |  |  | **44** |  |  |  | **61** | **35** |  | **7** |  | **H-3** | |  | **Pb-206** | |  |
| **50** |  |  |  | **238** |  |  | **Ca-44** | |  | **21** |  | **8** |  | **83** |  |  | **29** |  |  |  | **28** |  | **O-18** | | **9** | **31** |  |  | **19** |
| **20** |  |  | **78** | **Pb-204** | |  | **B-10** | |  |  |  |  |  |  |  |  |  |  |  |  |  | **235** | | **65** |  |  | **C-12** | |  |
|  |  |  |  |  |  |  |  | **191** |  | **66** |  | **58** |  |  | **144** |  | **190** |  | **5** | **Br-79** | |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
|  | **Isotopes: Find the Message** | |
| **Date:** | **Name: Solutions** |

In the chart below, record the missing values and isotopes using a Periodic Table. Then, find the shape with the corresponding missing value or isotope and shade it in.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Isotope** | **Standard Notation** | **Atomic Mass** | **Atomic Number** | **Number of Protons** | **Number of Neutrons** | **Number of Electrons** |
| **H-2** |  | **2** | **1** | **1** | **1** | **1** |
| **C-14** |  | **14** | **6** | **6** | **8** | **6** |
| **Cl-37** |  | **37** | **17** | **17** | **20** | **17** |
| **Ni-58** |  | **58** | **28** | **28** | **30** | **28** |
| **Ni-60** |  | **60** | **28** | **28** | **32** | **28** |
| **Cu-65** |  | **65** | **29** | **29** | **36** | **29** |
| **Se-78** |  | **78** | **34** | **34** | **44** | **34** |
| **Kr-86** |  | **86** | **36** | **36** | **50** | **36** |
| **Br-79** |  | **79** | **35** | **35** | **44** | **35** |
| **Br-81** |  | **81** | **35** | **35** | **46** | **35** |
| **U-235** |  | **235** | **92** | **92** | **143** | **92** |
| **Pb-204** |  | **204** | **82** | **82** | **122** | **82** |
| **Hg-204** |  | **204** | **80** | **80** | **124** | **80** |
| **Os-190** |  | **190** | **76** | **76** | **114** | **76** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **82** | **C-14** | | | |  | **24** |  | **Os-114** | | | **3** | **Ge-72** | | | **39** | **Ti-46** | | | **Sn-114** | | **75** | **Eu-152** | | |  | **Ni-60** | | **Os-190** | |
|  | **6** |  | **60** |  |  |  |  |  | **12** |  | **U-238** | |  | **88** | **Zn-68** | | | **91** |  |  |  |  |  | **67** |  |  | **In-115** | | **76** |
|  |  | **15** |  | **H-1** |  |  |  | **186** |  |  | **Ne-20** | |  |  |  | **97** | **Nd-146** | |  |  |  | **45** | **Xe-134** | | **Hg-200** | | | **2** |  |
| **235** | | **38** |  |  | **Dy-162** | | | **208** |  | **11** | **Br-80** | | | **27** |  |  | **205** | **99** |  |  | **Se-80** | |  | **10** | **S-34** | | **34** | **98** |  |
|  | **Cl-37** | | **1** |  |  | **72** | **Br-81** | | | **92** |  | **Cu-65** | |  |  |  | **17** |  |  | **80** | **14** |  |  |  |  |  |  | **143** | |
|  |  |  |  | **100** |  |  | **41** | **77** | | **33** | |  | **Hg-204** | |  |  | **36** |  |  |  |  | **Kr-86** | |  |  |  | **21** | **73** |  |
|  |  | **93** | **Kr-82** | | | **94** | **Ni-58** | | **86** |  | **4** |  |  |  | **44** |  |  |  | **61** | **35** |  | **7** |  | **H-3** | |  | **Pb-206** | |  |
| **50** |  |  |  | **238** |  |  | **Ca-44** | |  | **21** |  | **8** |  | **83** |  |  | **29** |  |  |  | **28** |  | **O-18** | | **9** | **31** |  |  | **19** |
| **20** |  |  | **78** | **Pb-204** | |  | **B-10** | |  |  |  |  |  |  |  |  |  |  |  |  |  | **235** | | **65** |  |  | **C-12** | |  |
|  |  |  |  |  |  |  |  | **191** |  | **66** |  | **58** |  |  | **144** |  | **190** |  | **5** | **Br-79** | |  |  |  |  |  |  |  |  |